

**IN THE UNITED STATES COURT OF FEDERAL CLAIMS
BID PROTEST**

BLUE ORIGIN FEDERATION, LLC,

Plaintiff,

V.

THE UNITED STATES,

Defendant,

and

SPACE EXPLORATION TECHNOLOGIES CORP.,

Defendant-Intervenor.

No. 21-1695C
Judge Richard A. Hertling

REDACTED VERSION

**BLUE ORIGIN'S MEMORANDUM OF POINTS
AND AUTHORITIES IN SUPPORT OF PLAINTIFF'S
CROSS-MOTION FOR JUDGMENT ON THE ADMINISTRATIVE RECORD**

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**BLUE ORIGIN’S MEMORANDUM OF POINTS
AND AUTHORITIES IN SUPPORT OF PLAINTIFF’S
CROSS-MOTION FOR JUDGMENT ON THE ADMINISTRATIVE RECORD**

Blue Origin Federation, LLC (“Blue Origin”), by and through its undersigned Counsel, respectfully submits this Memorandum of Points and Authorities in Support of its Cross-Motion for Judgment on the Administrative Record. Blue Origin seeks declaratory and permanent injunctive relief to remedy the arbitrary, capricious, and unlawful actions by Defendant, the United States, acting by and through the National Aeronautics and Space Administration (“NASA” or “Agency”), in awarding a contract to Space Exploration Technologies Corporation (“SpaceX”) pursuant to Broad Agency Announcement NNH19ZCQ001K_APPENDIX-H-HLS Option A (“Solicitation”). In support of this motion and application, Plaintiff states as follows:

I. INTRODUCTION

In this competition to develop, test, and demonstrate a new Human Landing System (“HLS”) to take American astronauts to the Moon for the first time in 50 years, NASA selected a proposal that it found was “high risk and immensely complex,” it found was “incomplete,” and it found missed “critical milestones” and “reviews required in NASA [Statement of Work]” and attachments. In order to select SpaceX, NASA waived or disregarded important safety and technical requirements – only for SpaceX – related to the certification and launch preparedness of its supporting spacecraft and launch vehicles.

Although NASA argued during the GAO protest that SpaceX’s proposal was fully compliant at all times, the Government Accountability Office’s (“GAO”) decision validated what NASA’s source evaluation panel initially found and confirmed -- that SpaceX’s proposal failed to comply with Solicitation Flight Readiness Review requirements and NASA waived these important milestone and critical safety reviews for SpaceX. In doing so, the GAO rejected the

Agency's new-for-litigation position and interpretation of the Solicitation, confirming that the Agency's position did not track the Solicitation's plain language and did not comport with NASA's contemporaneous evaluation actions.

Blue Origin has discovered and raised in this motion additional areas where SpaceX's proposal failed to comply with other key Solicitation-required reviews. NASA ignored or overlooked these violations of Solicitation terms, confirming Blue Origin's assertion that NASA's evaluation and award decision were arbitrary and capricious because NASA failed to consider numerous errors in SpaceX's proposal. Among the errors described in this motion, the primary errors include: (1) SpaceX's proposal to conduct another key Solicitation milestone review, the Design Certification Review, [REDACTED] to its first HLS launch date rather than 9 months as mandated by the Solicitation; (2) SpaceX's proposal to perform 6 mission-specific launch vehicle reviews several months later than they were required to be performed by the Solicitation, including some pre-launch reviews which SpaceX scheduled to occur *after* 15 out of 16 launches will have already occurred; and (3) SpaceX's proposal to [REDACTED] [REDACTED] the Mission Specific Critical Design Review ("MSCDR") was scheduled to be conducted, in violation of a clear Solicitation requirement to conduct the MSCDR before significant production activities begin.

NASA's failure to identify or evaluate these errors in SpaceX's proposal allowed SpaceX to have much greater schedule flexibility and a lower price, in addition to exposing NASA to tremendous launch and mission performance risk. Had Blue Origin known that NASA would accept such level of risk – contrary to the Solicitation's requirements and NASA's historical safety practices – and waive review requirements, therefore allowing for increased schedule flexibility, Blue Origin would have submitted a fundamentally different proposal with a different technical

approach, including use of [REDACTED], which would have allowed Blue Origin to substantially lower its price by offering a much larger corporate contribution.

NASA's arbitrary and capricious evaluation and award decision prejudiced Blue Origin, and this motion should be granted on that basis.

II. STATEMENT OF THE QUESTIONS PRESENTED

- A.** Whether NASA's decision to award the HLS Option A contract to SpaceX, after NASA wrote that SpaceX failed to comply with material Solicitation requirements, had discussions with only one offeror, failed to evaluate SpaceX's proposal in accordance with the Solicitation, and refused to amend the Solicitation to reflect its changed requirements in an effort to award a contract to just SpaceX, is arbitrary, capricious, an abuse of discretion, and not in accordance with applicable law.
- B.** Whether NASA's decisions to disregard its own internal documents about SpaceX and disregard fundamental procurement principles breached the implied-in-fact contract of good faith and fair dealings.
- C.** Whether Blue Origin, as the next offeror in line for award, was prejudiced by NASA's decision to award a contract to an offeror that presented an unawardable proposal and to have discussions with just SpaceX to let it change its technical proposal and price.
- D.** Whether Blue Origin is entitled to (a) a declaratory judgment that the evaluation and award of the HLS Option A contract is arbitrary and capricious, an abuse of discretion, and contrary to applicable statutes and regulations, and (b) injunctive relief that enjoins HLS Option A contract performance and remands this matter to NASA for further appropriate action.

III. STATEMENT OF THE CASE

A. **Human Landing System Base Period.**

The Option A Solicitation corresponds to one phase of NextSTEP-2 Appendix H: Human Landing System, NASA's multi-phased approach under a Broad Agency Announcement ("BAA") to achieve a 2024 crewed HLS demonstration mission. See AR Tab 108b67a at 105005-06. Preceding the Option A phase, the HLS BAA included a base period phase (the "Base Period") under which Blue Origin, SpaceX, and Dynetics were each awarded 10-month contracts for HLS design and development work. Id. at 105006. Base Period performance was considered by the Option A Source Evaluation Panel ("SEP") as a Management Area of Focus. See AR Tab 35 at 61927.

During the Base Period, Blue Origin originally proposed to use [REDACTED] [REDACTED]. See Robert H. Smith Decl. ("Smith Decl."), Appendix Ex. 1, ¶ 11. Its original Base Period proposal was given a weakness for using the [REDACTED] in light of NASA's launch vehicle certification requirements, because it "provides inadequate substantiation that it will achieve at least one of these requirements for its primary or backup launch." Id. at ¶ 13. Given that the Option A proposal included substantial milestone and other review requirements with mandatory deadlines that must occur prior to first HLS launch, Blue Origin decided that it could not complete all milestone and other review requirements in addition to the required three launch vehicle flights needed for certification. As such, Blue Origin changed course for its Option A technical proposal because the Option A Solicitation imposed material requirements for all HLS elements, which included launch vehicles [REDACTED] [REDACTED]. See id. at ¶ 12.

Blue Origin made a significant update to its initial HLS architecture to move from [REDACTED] [REDACTED] to one that was compatible with

existing commercial launch vehicles. See id. This update was made in direct response to NASA’s launch vehicle and supporting spacecraft certification requirements and milestone review requirements within the Option A BAA, in addition to the requirement for three successful demonstrated launches three months prior to FRR. See id. Blue Origin’s technical proposal now included launch vehicles that had been tested in the past. See Smith Decl., Ex. 1, ¶ 16; see also AR Tab 32a at 33337 [REDACTED]

[REDACTED]
[REDACTED]).

In the Option A SEP Report, the SEP assigned Blue Origin a strength for its use of already existing launch vehicles, noting Blue Origin’s vehicle architecture as one of its “attractive attributes.” AR Tab 59a at 62635. According to the SEP, Blue Origin’s use of existing launch vehicles “demonstrate[ed] that when using an existing launch vehicle . . . their architecture closes.” Id. at 62662. Further, the SEP noted that Blue Origin’s “ability to close utilizing an existing launch vehicle meaningfully reduces launch vehicle scheduling risks and increases the likelihood of successful contract performance.” Id. at 62662-63.

B. Human Landing System Option A Solicitation.

The Agency released the HLS Option A Solicitation (“Solicitation”), consisting of the NextSTEP-2 Appendix H Option A BAA and Solicitation Attachments A-Q to the three HLS contractors on October 30, 2020, with an amendment issued on November 16, 2020. This procurement was conducted as an “other competitive procedure” in accordance with FAR 6.102(d)(2) and FAR 35.016 (as deviated). AR Tab 27 at 24473.

The Option A Solicitation was issued as a BAA, but in contrast to general BAA practice, the Solicitation contained a 79-page common Statement of Work (“SOW”), in addition to hundreds of other common requirements in other requirements documents, and the offerors were competing

against each other for an Option A award. See AR Tab 27e at 32952 (referencing other requirements documents such as the 155-page Data Procurement Document). Also in contrast to typical BAA practice, the Solicitation stated NASA would not require certified cost or pricing information because NASA expected to achieve adequate price competition between the offerors, in accordance with FAR Part 15 FAR 15.403-1(b)(1)). AR Tab 27 at 24455. A price competition could not be achieved if proposals were not submitted in accordance with common requirements. NASA used FAR Part 15 price analysis techniques to evaluate the price reasonableness of offerors' proposals. Id.

1. Discussions and Post-Selection Negotiations.

The Solicitation provides for both "discussions" and "post-selection negotiations." The Agency stated that it may evaluate proposals and award contracts without conducting discussions or post-selection negotiations with Offerors (except clarifications as defined in FAR 15.306(a)). AR Tab 27 at 24433.

Discussions are defined under the Solicitation as "exchanges with Offerors that occur after receipt of proposals but before selection that result in the Contracting Officer inviting the Offeror to revise only those specific portions of its proposal that have been identified by the Contracting Officer as open to revision." Id. at 24434. "Post-selection negotiations" are defined as "exchanges with Offerors who have been selected for potential contract award that result in the Contracting Officer inviting the Offeror to revise only those specific portions of its proposal that have been identified by the Contracting Officer as open to revision." Id. The only difference between the two is that discussions occur before the selection(s) of the prospective awardee(s), and post-selection discussions occur only after the selection(s) has been made.

2. Milestone Review and Mission-Specific Launch Vehicle Reviews.

The Flight Readiness Review (“FRR”) and Design Certification Review (“DCR”) are identified as two of six critical milestone reviews, and two of only three milestone reviews that must occur before the HLS mission takes place. See AR Tab 27e at 32966 (the following are “Critical Milestone Reviews” – “Critical Design Review, Flight Readiness Review (FRR), Design Certification Review, Post Mission Assessment Review (PMAR), Sustaining System Requirements Review (SRR), and Sustaining Continuation Review (CR)”).

(a) *Milestone Reviews: Flight Readiness Review and Design Certification Review.*

The FRR and DCR are, in large part, safety reviews. See AR Tab 27e at 32972 (“The FRR examines tests, demonstrations, analyses, and audits that determine the system's readiness for a safe and successful flight or launch and for subsequent flight operations.”); see also id. at 32993 (“The completion of the appropriate safety analysis and the Program acceptance of the residual risk is a component of the success criteria for the engineering milestone reviews, including the Flight Readiness Review (FRR).”); AR Tab 108b59 (Dr. Alan W. Wilhite Decl. (June 30, 2021)) at 104854-55, ¶¶ 18-22 (describing the importance of FRRs in previous space shuttle missions, although the risk to astronaut safety is different here to the extent that the supporting spacecraft will not carry astronauts, yet even the supporting spacecraft flights could impact crewed launches and flights with debris and by connecting to vehicles that will be crewed during the mission); AR Tab 27e at 32970 (DCR Acceptance Criteria require that “Safety and Mission Assurance (SMA) (e.g., safety, reliability, maintainability, quality, software assurance and safety, and EEE parts) have been adequately addressed in system and operational designs and any applicable SMA products (e.g., PRA, system safety analysis) meet requirements, are at the appropriate maturity level for this phase of the program’s lifecycle, and indicate that the program safety/reliability

residual risks will be at an acceptable level.”); AR Tab 27e at 32972-73 (FRR Acceptance criteria include: (a) “Certification that flight operations can safely proceed with acceptable risk”; (b) “The hardware is deemed acceptable safe for flight”; (c) “All open safety and mission risk items have been addressed, and the residual risk is deemed acceptable”; and (d) “Class A-C software (per NPR 7150.2C, NASA Software Engineering Requirements) is deemed acceptably safe for flight.”).

(i) Flight Readiness Review

The FRR is a key decision point prior to launch. See AR Tab 108b59 (Dr. Alan W. Wilhite Decl. (June 30, 2021)) at 104854-55, ¶¶ 18-22. During the FRR, NASA and the contractor decide whether outstanding issues are at an acceptable level of risk to continue with the scheduled launch, determine whether technical issues raised at earlier reviews have been resolved, and raise any other concerns about anything else that might affect mission success. Id. The FRR process has been used since the Apollo missions, and failures in the FRR process have led to some of the most well-known tragedies in space travel, including the explosion of the Space Shuttle Challenger. Id. at 104854-55, ¶¶ 18-20. As a result, when NASA policy requires the inclusion of the FRR in a human space flight solicitation, such a provision is not viewed as unnecessary or of minimal significance. Id. at 104856, ¶ 23; see also AR Tab 43 at 62248 (“Lessons Learned from Past Programs . . . Starting the Certification of Flight Readiness and verification planning early”); AR Tab 27e at 32949 (“The Government will have responsibility for Certification of Flight Readiness.”).

The Solicitation’s Statement of Work and Attachments explicitly required FRRs be included in offerors’ proposals and integrated management schedules. See AR Tab 27e, at 32972; AR Tab 27k at 33187. The milestone acceptance criteria and payment schedule states that “[a]n FRR is required prior to **each launch of an HLS element**” and each Flight Readiness Review must be completed **“2 weeks before first launch of an HLS element (L-2 weeks).”** AR Tab 27k

at 33187 (emphasis added) (“Propose multiple FRRs as required”). The Solicitation includes a table that lists the “FRR Acceptance Criteria.” AR Tab 27e at 32972. This provision of the Solicitation states explicitly that Acceptance Criteria include ensuring that “[t]he flight vehicle, launch vehicle, and support spacecraft (such a propellant storage, propellant transfer, and/or upper stage vehicles that provide transportation capabilities beyond the standard for orbit insertion) are ready for flight.” Id.

Figure 1: Excerpt of Solicitation’s FRR Acceptance Criteria (AR Tab 27e at 32972-73)

Table 5-4 FRR ACCEPTANCE CRITERIA

Acceptance Criteria
The flight vehicle, launch vehicle, and support spacecraft (such as propellant storage, propellant transfer, and/or upper stage vehicles that provide transportation capabilities beyond the standard for orbit insertion) are ready for flight
The hardware is deemed acceptable safe for flight; Hardware integration testing has been successfully completed
Certification that flight operations can safely proceed with acceptable risk
Class A-C software (per NPR 7150.2C, NASA Software Engineering Requirements) is deemed acceptably safe for flight, has successfully completed software integration testing, and is ready to support flight, flight operations, and lunar surface operations
Interfaces have been checked and demonstrated to be functional
The Program has demonstrated compliance with applicable NASA requirements, standards, processes, and procedures
TBD and TBR items are resolved
Open Items and Waivers have been examined and residual risk from these is deemed to be acceptable
The flight environmental factors are within constraints
All open safety and mission risk items have been addressed, and the residual risk is deemed acceptable
Supporting organizations are ready to support flight, to include trained operations personnel
Software components meet the criteria defined in NASA-HDBK-2203, NASA Software Engineering Handbook, or an accepted alternate standard. NASA software IV&V findings dispositioned.
Responsible spectrum manager(s) concur that all necessary spectrum certification(s) and authorization(s) have been obtained
Hazardous operations have been tested.

Both the Agency and the contractor are responsible for ensuring the FRR Acceptance Criteria are met during the FRR, but it is the Agency which has ultimate responsibility to certify flight readiness for all launches, including launch vehicles and supporting spacecraft. See AR Tab 27e at 32949 (“The Government will have a shared responsibility for validating that the content of the contractor proposed milestone reviews are in compliance with the applicable acceptance criteria.”); see also id. (“The Government will have responsibility for Certification of Flight Readiness.”).

(ii) Design Certification Review

Similar to the FRR, the time period for the DCR is triggered by the first launch of an HLS element. The SOW states that each offeror should conduct the DCR “at first HLS launch – 9 months (L-9).” SOW, Tab 27e at 32969; see also AR Tab 27k at 33187 (the Solicitation milestone acceptance criteria and payment schedule requires the offeror to conduct the DCR “9 months before first HLS element launch (L-9 months).”).

The DCR is one of the, if not *the*, most important milestone safety reviews as it verifies the compliance and safety of the entire HLS design. See Dr. Alan W. Wilhite Declaration (Oct. 1, 2021) (“Wilhite Decl.”), Appendix Ex. 3, ¶ 27. The following table from the SOW provides the Acceptance Criteria for the DCR:

Figure 2: Excerpt of Solicitation's DCR Acceptance Criteria (AR Tab 27e at 32970-71)**Table 5-2 DCR ACCEPTANCE CRITERIA AND PRODUCTS**

Acceptance Criteria	Applicable Products
Verification results satisfy all requirements. (e.g. functional, performance, design & construction standards, human spaceflight certification)	Detailed Verification Objectives – Initial Demo Verification Closure Notices System Safety Assessment Report (SSAR) – Initial Demo
Docking System interfaces with the HLS are verified	Detailed Verification Objectives – Initial Demo Verification Closure Notices
Launch vehicle interfaces with the HLS are verified	Launch Vehicle/Spacecraft Interface Control Document (ICD) and Verification Matrix – Initial Demo Launch Vehicle Mission Specific Drawings
Waivers and deviations to requirements are approved by HLS Program	Detailed Verification Objectives – Initial Demo Verification Closure Notices HLS Integrated Lander System Specification – Initial Demo Design Data Book – Initial Demo HLS GNC Simulator Specification
Any requirement that has not been verified, or approved for a deviation or waiver, is noted with a mitigation plan and schedule.	Detailed Verification Objectives – Initial Demo Verification Closure Notices Integrated Master Schedule Risk Reports – Initial Demo
Safety and Mission Assurance (SMA) (e.g., safety, reliability, maintainability, quality, software assurance and safety, and EEE parts) have been adequately addressed in system and operational designs and any applicable SMA products (e.g., PRA, system safety analysis) meet requirements, are at the appropriate maturity level for this phase of the program's life-cycle, and indicate that the program safety/reliability residual risks will be at an acceptable level.	System Safety Assessment Reports – Initial Demo PRA (NASA generated using contractor data) Human Error Analysis Reports & Analyses–Initial Demo Micrometeoroid Orbital Debris (MMOD) Report Planetary Protection Data (Initial Pre-Launch)

The pedigrees of the test articles directly traceable to the production unit of the HLS and the docking system.	Design Data Book – Initial Demo
Test procedures and environments used comply with those specified in design to specification including docking system.	Design Data Book – Initial Demo Detailed Verification Objectives – Initial Demo Verification Closure Notices Assembly, Integration and Test Plan – Initial Demo Flight Software Simulator
Design changes in the CI resulting from the verification process (as run – test, etc.) have been incorporated and/or appropriately addressed (successfully retested as required).	Detailed Verification Objectives – Initial Demo Verification Closure Notices Design Data Book – Initial Demo HLS Integrated Lander System Specification – Initial Demo
Verify the approach is compliant with requirements relative to SMA and reliability.	Detailed Verification Objectives – Initial Demo Verification Closure Notices
The program schedule estimate is credible to meet delivery to and checkout at Lunar NRHO or LO dates.	Integrated Master Schedule Schedule Risk Assessment Risk Reports – Initial Demo
All issues and concerns raised during the DCR process are documented, discussed and provided with a plan for resolution and implementation.	DCR Board Actions
Verify the software approach is compliant with software requirements.	Software Plan Software Verification, Validation, and Certification Plan Project Protection Plan Threat Summaries Candidate Protection Strategy Implementation

For the DCR, offerors are also required to provide a number of reports, analyses, and data packages, including the following documents: Avionics Emulator and Acceptance Data Package, Micrometeoroid Debris Analysis, System Safety Assessment Report, and Flight Software Simulator, and Risk Reports - Initial Demo. AR Tab 27f at 33142.

(b) Mission-Specific Launch Vehicle Reviews.

In addition to the critical FRR and DCR milestone requirements, the Solicitation requires the offeror to conduct technical and readiness reviews related to the offeror's commercial launch vehicles as modified for the HLS mission – such reviews include the Mission Specific Preliminary

Design Review (“MSPDR”), the Mission Specific Critical Design Review (“MSCDR”), System Acceptance Review (“SAR”), the Launch Vehicle Systems Readiness Review (“LV SRR”), and the Launch Readiness Review (“LRR”). As with the FRRs and DCR requirements, the Solicitation provided explicit instructions on when these reviews were required to occur.

#	Review Requirement	Solicitation’s Requirement Description
1	Mission Specific Preliminary Design Review	“At not later than L-18 months, the contractor shall conduct a preliminary detailed design review prior to major commitment to drawings and design. Mission specific trade studies shall be completed prior to the MSPDR.” (AR Tab 27e at 33009).
2	Mission Specific Critical Design Review	“At not later than L-12 months, the contractor shall conduct an MSCDR prior to design freeze and before significant fabrication activity begins.” (AR Tab 27e at 33010).
3	System Acceptance Review	“At not later than L-4 months, the contractor shall conduct a mission specific SAR after all items are complete to review the design, fabrication, qualification testing and analysis results of the mission specific items, such as special adapters, low-shock separation systems, unique payload fairing access doors to perform final cover removal or batter plug installation, special purge locations or gasses, fuel fill or vent capabilities, cryogenic management vent lines, etc. Additionally, as soon as feasible, the contractor shall conduct a Launch vehicle (LV) SAR to review the final results of the design, fabrication, qualification testing and analysis of the of the common launch vehicle configuration (CLVC) after the first successful flight of that common launch vehicle configuration.” (AR Tab 27e at 33010).
4	Launch Vehicle Systems Readiness Review	“The contractor shall conduct a Launch Vehicle systems Readiness Review to demonstrate that the launch site and launch vehicle are ready to proceed with launch vehicle processing activities at the launch site.” (AR Tab 27e at 33011).
5	Pre-Mate Readiness Review	“At not later than spacecraft to LV mate minus 1 week, the contractor shall conduct a Pre-Mate Readiness Review to demonstrate the launch site and launch vehicle are ready for spacecraft mechanical and electrical integration. The contractor shall conduct a launch vehicle/site walkdown with NASA participation prior to or in conjunction with the Pre-Mate Readiness Review.” (AR Tab 27e at 33011).
6	Launch Readiness Review (LRR) (10.3.7)	“LVC will conduct/chair, and NASA LSP shall participate in an LRR one day prior to launch to verify all actions from the FRR are complete and final processing has been successfully completed. At the conclusion of this review, NASA will provide an “approval to proceed with launch countdown.” (AR Tab 27e at 33011).

(c) *The Term “HLS Element” Includes Supporting Spacecraft and Launch Vehicles.*

The Solicitation’s definition of “HLS” confirms an “HLS element” is broader than an Integrated Lander. The HLS definition shows it is made up of four elements: (1) the Integrated Lander (or elements thereof); (2) all Supporting Spacecraft; (3) all launch vehicles necessary for launch and delivery of the contractor’s Integrated Lander; and (4) Active-Active docking adapter (ADAA). See AR Tab 27e at 32948. Specifically, the Solicitation’s Statement of Work defines “HLS” as:

All objects, vehicles, elements, integrated systems, systems, subsystems, or components thereof that are designed, developed, and utilized by the contractor, its teammates, subcontractors, and suppliers in performance of this contract, and which collectively comprise the contractor’s Integrated Lander (or elements thereof), all Supporting Spacecraft, all launch vehicles necessary for launch and delivery of the contractor’s Integrated Lander (or elements thereof) and its Supporting Spacecraft, and the contractor’s Active-Active docking adapter (AADA) (if required for performance of the contractor’s crewed demonstration mission).

Id. Supporting Spacecraft and Integrated Lander are separately defined as follows:

Integrated Lander: Any and all combinations of contractor elements (e.g. Ascent Element), including potentially a single element, which is integrated at any time crew are onboard.

Supporting Spacecraft: Any contractor spacecraft that is not otherwise the Contractor’s HLS Integrated Lander, Launch Vehicle, or AADA, but that is otherwise required for the Contractor to execute its demonstration mission or any portion thereof in performance of this contract, including, but not limited to, rendezvous, proximity operations, docking and undocking (RPODU), propellant transfer, and orbital maneuvering and transfer.

Id.

The Solicitation explicitly includes launch vehicles and Supporting Spacecraft in the scope of review for each critical milestone review. See id. at 32965 (“Additionally, supporting spacecraft that are required in the contractor’s concept of operation to successfully complete the mission shall be included in the scope of the review for mission success.”); see also id. at 32972 (FRR

Acceptance Criteria require a determination that the “flight vehicle, launch vehicle, and support spacecraft . . . are ready for flight.”); *id.* at 32970 (DCR Acceptance Criteria require that “Docking System interfaces with the HLS are verified,” and “Launch vehicle interfaces with HLS are verified”). Furthermore, NASA’s own contemporaneous interpretation of the HLS elements during the actual evaluation period confirms that supporting spacecraft are considered HLS elements. See, e.g., AR Tab 52b at 62523 (“Per the solicitation, supporting vehicles such as Centaur tankers are elements of the HLS system.”).

These critical milestone reviews are required “for the HLS Program in order to be able to assess programmatic and technical progress and performance at key decision points in the development and operational lifecycle phases, with the ultimate goal of certifying the lander for crewed operations to and from the lunar surface and assessing the likelihood of mission success.” AR Tab 27e at 32965. If an offeror delayed the DCR or FRR until it launches its Integrated Lander, not only would that create a safety risk for launches occurring without these reviews, but any supporting spacecrafts and other elements launched before the reviews occurred would not have the intended benefit of the requisite milestone reviews and acceptance criteria checks. See Data Procurement Documents Involving the DCR (AR Tab 27f at 33086, 33103, 33111, 33123, 33142), and Data Procurement Documents Involving the FRRs (AR Tab 27f at 33101, 33111, 33120, 33124).

C. SpaceX’s Initial Proposal Failed to Include 15 FRRs, the DCR, and Other Material Review Requirements.

On December 8, 2020, the offerors’ completed proposals were due and submitted to NASA for evaluation.

1. SpaceX’s Proposal Failed to Include 15 FRR Milestone Reviews.

SpaceX’s proposal required a minimum of 16 launches for its HLS Starship, [REDACTED]

SuperHeavy Boosters, which are launch vehicles, and its one Depot Starship and [REDACTED] Tanker Starships, which are Supporting Spacecraft. See AR Tab 34d.46 at 55969-70; GAO Decision, AR Tab 108b67a at 105012 (“The contracting officer noted that SpaceX’s concept of operations anticipated multiple supporting spacecraft (SpaceX’s Tanker Starship and Depot Starship) launches in addition to the launch of its integrated landing vehicle (SpaceX’s HLS Starship).”).

As mentioned above, the Solicitation required FRRs two weeks before each launch of an HLS element, which included supporting spacecraft and launch vehicles. AR Tab 27k at 33187. SpaceX’s initial proposal did not contain any FRRs for Supporting Spacecraft or launch vehicles. See Figure 3, AR Tab 34d.46 at 55969-70; see also Wilhite Decl., Ex. 3 at Attachment A (*Summary of SpaceX IMS Milestone Requirements and Reviews*). SpaceX proposed only one FRR for its integrated lander, the HLS Starship. This FRR is scheduled to take place on [REDACTED] while SpaceX’s first HLS launch is scheduled to occur on [REDACTED]

Figure 3: Summary of Each SpaceX HLS Element Launch and Scheduled FRR.

#	Date	Description of IMS Event	Classification	Does Event Include FRR
1	[REDACTED]	Crewed Lunar Launch #1 (Depot Starship)	Launch #1	No
2	[REDACTED]	Crewed Lunar Launch #2 (Tanker [REDACTED])	Launch #2	No
3	[REDACTED]	Crewed Lunar Launch #3 (Tanker [REDACTED])	Launch #3	No
4	[REDACTED]	Crewed Lunar Launch #4 (Tanker [REDACTED])	Launch #4	No
5	[REDACTED]	Crewed Lunar Launch #5 (Tanker [REDACTED])	Launch #5	No
6	[REDACTED]	Crewed Lunar Launch #6 (Tanker [REDACTED])	Launch #6	No
7	[REDACTED]	Crewed Lunar Launch #7 (Tanker [REDACTED])	Launch #7	No
8	[REDACTED]	Crewed Lunar Launch #8 (Tanker [REDACTED])	Launch #8	No
9	[REDACTED]	Crewed Lunar Launch #9 (Tanker [REDACTED])	Launch #9	No
10	[REDACTED]	Crewed Lunar Launch #10 (Tanker [REDACTED])	Launch #10	No
11	[REDACTED]	Crewed Lunar Launch #11 (Tanker [REDACTED])	Launch #11	No
12	[REDACTED]	Crewed Lunar Launch #12 (Tanker [REDACTED])	Launch #12	No
13	[REDACTED]	Crewed Lunar Launch #13 (Tanker [REDACTED])	Launch #13	No
14	[REDACTED]	Crewed Lunar Launch #14 (Tanker [REDACTED])	Launch #14	No

15	[REDACTED]	Crewed Lunar Launch #15 (Tanker [REDACTED])	Launch #15	No
16	[REDACTED]	Flight Readiness Review (FRR)	FRR	Missing 15
17	[REDACTED]	Crewed Lunar Launch #18 HLS Lander	Launch #16	Yes

AR Tab 34d.46 at 55969-70; see also Wilhite Decl., Ex. 3 at Attachment A.

SpaceX's initial proposal failed to include *any* FRRs for its fifteen Supporting Spacecraft launches, meaning SpaceX would have conducted all of its Supporting Spacecraft launches without critical information from the FRR. See id. These include, for example, a System Safety Report, which provides status of the resolution of potential safety risks, a Mishap Preparedness and Contingency Plan, which addresses "report[ing] mishaps and close-calls occurring at non-NASA government facilities, in-flight, or in-space," and an Orbital Debris Assessment Report, which addresses generation of debris during operations or malfunctions. See AR Tab 27f at 33101, 33111, 33120.

Another item that SpaceX omitted for 15 launches, which were part of the FRRs, was the Planetary Protection Data requirement. That FRR requirement applies explicitly to not only the HLS Integrated Lander, but also to all "supporting spacecraft needed to achieve the mission," and specifically "includes spacecraft that provide propellant storage or propellant transfer":

TITLE: Planetary Protection Data

DESCRIPTION/USE: To document the planetary protection compliance for Human Landing System (HLS) Program Lunar missions.

SUBMISSION FREQUENCY: **Pre-Launch Data 120 Days prior to Flight Readiness Review (FRR);** Post-Launch 45 Days after Launch; End-of-Mission Data 45 days after the formally declared "End-of-Mission"; Planetary Protection Extended Mission Data 65 days prior to the end of the nominal mission if the project plans to extend its mission

SCOPE: The Planetary Protection Data documents the planetary protection compliance for the integrated HLS flight system *includes the HLS Integrated lander and supporting spacecraft* needed to achieve the mission. This *includes spacecraft that provide propellant storage or propellant transfer*. This also includes launch vehicle upper stages that perform critical operations above and beyond insertion of a payload into a desired orbit or trajectory.

Id. at 33124 (emphasis added). Again, that review was not proposed by SpaceX to be performed when required by the Solicitation.

Each FRR costs [REDACTED] millions of dollars. See [REDACTED] [REDACTED] Blue Origin Payment Milestones, AR Tab 32d.87 at 34855 (showing Blue Origin’s price for FRRs ranged from \$[REDACTED] million to \$[REDACTED] million, depending on the HLS element).

2. SpaceX’s Proposal Failed to Comply with the DCR Requirement.

The Solicitation required offerors to conduct the DCR “9 months before **first HLS element launch (L-9 months).**” AR Tab 27k at 33187 (emphasis added). SpaceX scheduled the DCR to begin on [REDACTED] and end on [REDACTED]. AR Tab 34d.46 at 55932, row 128. However, SpaceX’s Depot Starship, which launches on [REDACTED], will be followed by at least 14 consecutive Tanker Starship launches, each only six days apart, and the integration operations for which start on [REDACTED]. AR Tab 34d.46 at 55932, 55969-70; see also Wilhite Decl., Ex. 3 at Attachment A. SpaceX’s proposal was not compliant with the period of performance for the Solicitation’s mandatory DCR requirement. Based on SpaceX’s Integrated Management Schedule (“IMS”), the DCR should have been scheduled at least eight months earlier in [REDACTED].

For the Design Certification Review, in addition to being held at the time required by the Solicitation, an offeror is required to provide reports, analyses, and data packages specified by the Solicitation, including the following documents:

- a. **Avionics Emulator and Acceptance Data Package:** This package provides a functional model to execute the HLS flight software, and support tools to emulate flight simulations to the software system to use for test, operations, preparation, and other tasks. AR Tab 27f at 33142.
- b. **Micrometeoroid Debris (“MMOD”):** The MMOD analysis assesses risk to the HLS spacecraft and crew from critical damage to, or penetration of,

HLS components from micrometeoroid and orbital debris impacts during various mission stages. Id. at 33122.

- c. **System Safety Assessment Report (“SSAR”):** The SSAR is used to document the identifying, controlling, and verification activities associated with potential safety hazards and supports the risk management process by eliminating identified risks or reducing them to an acceptable level. Id. at 33111.
- d. **Flight Software Simulator:** The flight software simulator provides a functional model to execute the HLS flight software and emulate flight simulations in the software system. Id. at 33103.
- e. **Risk Reports - Initial Demo:** The Risk Reports provide information for planning, management, control, and implementation of the contractor’s risk management program in compliance with NASA regulations. Id. at 33086.

SpaceX will conduct the DCR [REDACTED] rather than nine months, prior to the beginning launches of its supporting spacecraft and launch vehicles. Thus, SpaceX proposed to conduct launches of supporting spacecraft, including its only Depot Starship, and launch vehicles, with [REDACTED] (rather than nine months required by the Solicitation) to implement critical flight and safety information from the DCR – such as a final Avionics Emulator and Acceptance Data Package, final Micrometeoroid Orbital Debris (“MMOD”) Report, baseline System Safety Assessment Report (“SSAR”) – Initial Demo, final Flight Software Simulator, or an updated Risk Reports – Initial Demo.

3. SpaceX’s Proposal Also Failed to Meet Other Important Review Requirements.

In addition to failing to meet FRR and DCR requirements, SpaceX’s proposal also did not meet the schedule requirements for at least six other critical launch vehicle reviews. First, the Mission Specific Preliminary Design Review (“MSPDR”) must occur no later than 18 months prior to SpaceX’s first HLS launch, *i.e.*, [REDACTED] (L-18 months), but SpaceX scheduled its MSPDR for [REDACTED]. See AR Tab 27e at 33009; AR Tab 34d.46 at 55969, row 1936.

Second, pursuant to the Solicitation, the Mission Specific Critical Design Review (“MSCDR”) must occur no later than [REDACTED] (L-12 months) for SpaceX, but it is scheduled for [REDACTED]. See AR Tab 27e at 33010; AR Tab 34d.46 at 55969, row 1937.

Third, the System Acceptance Review (“SAR”) must occur no later than [REDACTED] (L-4 months), but for SpaceX it is scheduled for [REDACTED]. See AR Tab 27e at 33010; see also AR Tab 34d.46 at 55969, row 1938. On SpaceX’s Integrated Master Schedule, the SAR occurs [REDACTED]. See AR Tab 34d.46 at 55969-70.

Fourth, the Solicitation requires a Launch Vehicle System Readiness Review (“LV-SRR”) “to demonstrate that the launch site and launch vehicle are ready to proceed.” See AR Tab 27e at 33011. SpaceX’s proposal only provides for one LV-SRR on [REDACTED]; therefore, 15 of SpaceX’s 16 launches are missing LV-SRRs. See AR Tab 34d.46 at 55969, row 1939.

Fifth, the Solicitation also requires that a Pre-Mate Readiness Review (“PMRR”) be conducted no “later than spacecraft to LV mate minus 1 week . . . to demonstrate the launch site and launch vehicle are ready for spacecraft mechanical and electrical integration.” See AR Tab 27e at 33011. SpaceX’s Integrated Management Schedule only includes one PMRR on [REDACTED]. See AR Tab 34d.46 at 55969, row 1940. Therefore, here SpaceX’s proposal is missing 15 PMRRsLV-SRRs.

Last, the Solicitation requires a Launch Readiness Review (“LRR”) occur “one day prior to launch to verify all actions from the FRR are complete” See AR Tab 27e at 33011. SpaceX’s only proposed LRR occurs on [REDACTED]. See AR Tab 34d.46 at 55969, row 1941. However, it fails to provide 15 LRRs required to accompany the other launches and FRRs as required by the Solicitation.

Figure 4: Summary of each SpaceX's HLS Element Launch

#	Date	Description of IMS Event	Classification	Does Event Include Timely Reviews
1		LV Mission Specific Preliminary Design Review	MSPDR	Months Late
2		LV Mission Specific Critical Design Review	MSCDR	Months Late

AR Tab 34d.46 at 55969-70; see also Wilhite Decl., Ex. 3 at Attachment A.

Further, SpaceX's review plan states that the early milestone reviews may be conducted with Starship "[REDACTED]." In other words, SpaceX may conduct critical milestone reviews on a [REDACTED]. See

AR Tab 68b at 62911 (“[REDACTED]
[REDACTED]
[REDACTED] [REDACTED]
[REDACTED]”). NASA did not assign any weaknesses
for SpaceX’s proposal ambiguity regarding whether SpaceX would conduct critical milestone
reviews with the actual HLS configuration it planned to use for Option A.

4. SpaceX’s Production Schedule Contains Clear Errors and Little To No Margin For Delays.

The MSCDR must be performed “prior to design freeze and before significant fabrication
activity begins” because the contractor must “present a final detailed design using drawings,
analyses, and evaluation testing that shows the design meets final performance and interface
specifications, safety requirements, and mission objectives.” AR Tab 27e at 33010. SpaceX
proposed [REDACTED] the MSCDR [REDACTED]
[REDACTED] – [REDACTED] begins [REDACTED] and [REDACTED] begins
[REDACTED]. AR Tab 34d.46 at 55969, rows 1954, 1955. [REDACTED]
[REDACTED]. See AR Tab 34d.46 at 55969-70.

SpaceX proposed to complete build of its Depot Starship on [REDACTED] (AR Tab
34d.46 at 55969, row 1960) and to begin integration and launch of the Depot Starship [REDACTED]
[REDACTED] (*Id.*, row 1966). Similarly, SpaceX proposed [REDACTED]
[REDACTED] integration and launch of the first
tanker is set to begin ([REDACTED]). See *id.*, rows 1956, 1971. Further, for the uncrewed
flight test, SpaceX proposed to [REDACTED]
[REDACTED] to launch the [REDACTED] depot

starship. See *id.* at 55968 rows 1910, 1915.

D. The Agency Determined SpaceX’s Proposal Was Not Compliant with the Solicitation’s Statement of Work Requirements.

1. The Agency’s Evaluation Process.

On December 7, 2020, the day before the proposals were due, NASA held a “Kick-Off” meeting with the HLS Source Selection Organization (“SSO”) to discuss the evaluation and award process. AR Tab 35d at 61955, 61958. The Solicitation involved three evaluation factors: (1) Technical Approach; (2) Price; and (3) Management Approach. *Id.* at 61996. The technical proposals and the management proposals each had various sub-factor areas of focus that would be assigned a strength or weakness finding by the evaluators:

Figure 5: Excerpt of Solicitation’s Evaluation Factors and Areas of Focus (AR Tab 35d at 61996)

Evaluation Factor	Area of Focus
Factor 1: Technical Approach	Technical Design Concept
	Development, Schedule, and Risk
	Verification, Validation, and Certification
	Insight
	Launch and Mission Operations
	Sustainability
	Early System Demonstrations
Factor 2: Total Evaluated Price	No focus areas
Factor 3: Management Approach	Organization and Management
	Schedule Management
	Risk Reduction
	Commercial Approach
	Base Period Performance
	Small Business Subcontracting Plan
	Data Rights

The Source Evaluation Panel (“SEP”) divided the review of the proposals into three evaluation sub-Panels that tracked the Solicitation’s three factors: (1) the Technical Evaluation

sub-Panel (“TEP”); (2) the Management Evaluation sub-Panel (“MEP”); and (3) the Pricing Evaluation sub-Panel (“PEP”). AR Tab 35d at 61957. The TEP and MEP evaluators were to assign a strength or weakness finding for each area of focus under their respective factors from the following list:

Figure 6: Excerpt of Solicitation’s Areas of Focus Findings Definitions (AR Tab 35d at 61997)

	Definition
Significant Strength	An aspect of the proposal that greatly enhances the potential for successful contract performance and/or that appreciably exceeds specified performance or capability requirements in a way that will be advantageous to the Government during contract performance.
Strength	An aspect of the proposal that will have some positive impact on the successful performance of the contract and/or that exceeds specified performance or capability requirements in a way that will be advantageous to the Government during contract performance.
Weakness	A flaw in the proposal that increases the risk of unsuccessful contract performance.
Significant Weakness	A flaw in the proposal that appreciably increases the risk of unsuccessful contract performance.
Deficiency	A material failure of a proposal to meet a Government requirement or a combination of significant weaknesses in a proposal that increases the risk of unsuccessful contract performance to an unacceptable level.

The sub-Panels were also to assign a single “Adjectival Rating” to the technical and management evaluation factors based on all “areas of factors” being “considered in totality (weighted approximately equally).” *Id.* at 61996.

Figure 7: Excerpt of Evaluation Factors Adjectival Rating Definition (AR Tab 35d at 61999)

Adjectival Rating	Definition
Outstanding	A thorough and compelling proposal of exceptional merit that fully responds to the objectives of the BAA. Proposal contains strengths that far outweigh any weaknesses.
Very Good	A competent proposal of high merit that fully responds to the objectives of the BAA. Proposal contains strengths which outweigh any weaknesses.
Acceptable	A competent proposal of moderate merit that represents a credible response to the BAA. Strengths and weaknesses are offsetting or will have little or no impact on contract performance.
Marginal	A proposal of little merit. Proposal does not clearly demonstrate an adequate approach to and understanding of the BAA objectives. Weaknesses outweigh strengths.
Unacceptable	A seriously flawed proposal that is not responsive to the objectives of the BAA. The proposal has one or more deficiencies or multiple significant weaknesses that either demonstrate a lack of overall competence or would require a major proposal revision to correct. The proposal is unawardable.

During the Kickoff Meeting, the SSO reviewed the critical milestone requirements listed in the Solicitation, including that (1) “An FRR is required prior to each launch of an HLS element” and is to occur “2 weeks before first launch of an HLS element (L-2 weeks”), and (2) the DCR is to occur “9 months before first HLS element launch (L9 months).” AR Tab 35d at 61972.

2. In the Middle of the Evaluation Process, NASA Realizes the Budget Constraint’s Significant Impact on Its Original Solicitation Plan.

Between January 26 and 28, 2021, NASA completed a presentation evaluating each offeror’s cost proposal. See generally AR Tabs 39a-39c. Shortly thereafter, in February 2021, NASA began to discuss how Congress’ appropriation of \$850 million (rather than the \$3.3 billion) in 2021 HLS funding will impact the Solicitation. See AR Tab 44 at 62255. The Administrative Record reveals that, in the middle of the technical and management evaluation process, NASA begins to discuss three options for awarding the Option A Solicitation based on its budget constraints, including (1) amending the Solicitation for Leader/Follower, (2) amending the solicitation for modification funding for two awardees, and (3) only using one option A awardee. AR Tab 42 at 62235. Under the one option A awardee option, NASA states that “One contractor ready and certified via Option A” as an opportunity for awarding only one awardee. (AR Tab 42 at 62238).

3. The Agency Found SpaceX Failed to Meet the FRR Requirement.

On March 4, 2021, the SEP provided a pre-briefing presentation to the Source Selection Authority (“SSA”) on its evaluation findings. AR Tab 48 at 62335. During that meeting, the SEP reported that Blue Origin and Dynetics both satisfied the Solicitation’s requirement to conduct an FRR before each launch of an HLS element. See id. at 62361 (Blue Origin had “Element FRRs conducted before each element launch”), 62379 (finding Dynetics has “An FRR occur[ing] before each launch”). In the same presentation, the SEP identified that the required elements for SpaceX’s

HLS included [REDACTED] SuperHeavy Boosters, one Depot Starship, [REDACTED] Reusable Tanker Starships, and one HLS Starship. AR Tab 48 at 62391; see also AR Tab 61 at 62873 (same finding on April 1, 2021).

Figure 8: Excerpt from SEP Presentation Finding SpaceX HLS Elements (March 4, 2021) (AR Tab 48 at 62391)



But, unlike the express recognition of FRRs for each launch by Blue Origin and Dynetics, the SEP did not specifically acknowledge that SpaceX's Development Plan satisfied the Solicitation's FRR requirement. See AR Tab 48 at 62397.

On March 22, 2021, several months after proposal submission, the SEP presented its findings to the SSA specifically regarding SpaceX's proposal. AR Tab 52c at 62544. At that time, the SEP conclusively found that *SpaceX's proposal was "incomplete"* and not consistent with the Solicitation's Statement of Work. Id. at 62593 (emphasis added). The SEP reported that SpaceX's Integrated Management Schedule was "missing required critical milestone reviews in both the Milestone and Acceptance Criteria and Payment Schedule" and did "not include reviews required in the NASA SOW and Solicitation Att[achment] O." Id. The SEP went on to state that SpaceX's proposal "includes only [a] single FRR for the HLS lander and not the required FRR's for [its] supporting spacecraft (depot and tanker)." Id.

Figure 9: Except from SEP Slide Presentation to the SSA on SpaceX Evaluation (AR Tab 52c at 62593)

- (W) SpaceX-M2-007: Milestone Inconsistency within IMS
 - Proposal is incomplete, missing required critical milestones reviews in both the Milestone and Acceptance Criteria and Payment Schedule (Att 13) and in the IMS (Att 19):
 - Proposal does not include reviews required in NASA SOW and Solicitation Att O
 - Proposal includes only single FRR for the HLS lander and not the required FRR's for supporting spacecraft (depot and tanker)

Again, on April 1, 2021, the SEP's final SpaceX report unambiguously stated that SpaceX's proposal "is inconsistent with" and "not in accordance with" the requirement for the FRR milestone reviews to include supporting spacecraft:

Thus, the solicitation was unclear whether offerors were required to propose an FRR milestone (and associated review) to be conducted and achieved for each proposed supporting spacecraft prior to launch and flight operations; or alternatively, whether offerors were required to propose a single FRR covering the full scope of its demonstration mission prior to the launch of any lander element or supporting spacecraft. ***Regardless, the offeror's proposed FRR milestone is not in accordance with either interpretation.***

Instead, given its proposed a single-element architecture for its HLS Starship, the operation of which is enabled by numerous supporting spacecraft in order to achieve their demonstration mission, the offeror proposed a single FRR milestone review event to occur two weeks prior to the launch of their HLS Starship. As such, ***the offeror did not propose any corresponding FRR milestone review events prior to the launch of their supporting spacecraft (namely, their depot and tanker Starships) which commence their demonstration mission.*** The offeror's proposal evidences that they consider their depot and tanker Starships as necessary supporting spacecraft because both appear in the offeror's IMS showing the interdependencies between the vehicles' build, integration, and launch operations activities. However, the offeror neither proposed any FRR events dedicated to one or all of its supporting spacecraft, nor a single FRR to cover the full scope of its demonstration mission prior to the launch of its first supporting spacecraft. ***Thus, in either case, the offeror's proposal is inconsistent with this required milestone (or milestones) as set forth in the solicitation.***

AR Tab at 59c at 62813 (emphasis added). As this section of the SEP's final report for SpaceX conclusively demonstrates, there is no interpretation of this requirement – for FRRs to include Supporting Spacecraft – which SpaceX's initial proposal met.

E. Notwithstanding SpaceX's Noncompliance, the Agency Entered Post-Selection Negotiations Only with SpaceX, Waived the Original FRR Requirement for only SpaceX, and Changed the FRR Requirement Terms for Only SpaceX.

The very next day, on April 2, 2021, notwithstanding the SEP's clear findings of SpaceX's noncompliance with the Solicitation's FRR requirements the previous day, the SSA made an initial selection of SpaceX for potential Option A award. See SSA Initial Selection and Negotiations Determination, AR Tab 64 at 62892. The SSA relied on the "conclusion of the SEP and the CO that SpaceX's proposal, from a solicitation compliance perspective, contains no deficiencies or similar errors and is therefore awardable without needing to engage in discussions in order to solicit for a revised proposal." Id.

After selecting SpaceX for award, NASA did engage in discussions in order to solicit for a revised proposal. That same day, the CO sent a letter to SpaceX inviting SpaceX to engage in post-selection "negotiations." See AR Tab 63 at 62885. The CO stated that the FRR Solicitation requirements were "*arguably* ambiguous," and the SpaceX's proposal was only "*arguably* not consistent with all FRR milestone review requirements[.]" Id. at 62889-90 (emphasis added). The CO then stated that "in order to meet NASA's intent of its FRR requirement for supporting spacecraft" NASA requested a revised proposal to include: (1) one FRR for all of the Tanker Starship supporting spacecraft; (2) one FRR for the Depot Starship supporting spacecraft; and (3) "delta-FRRs" that would be triggered in the event of issues relevant to flight readiness." Id.

So-called "delta-FRRs" were an entirely new concept that are not found in the HLS Option A Solicitation materials, and were not offered to Blue Origin or Dynetics. Only SpaceX was given an opportunity to revise its proposal with this new FRR requirement. During post-selection discussions with NASA, SpaceX revised its proposal to include one FRR for the Depot Starship and one FRR to cover all fourteen launches of the Tanker Starships. This revised proposal also failed to meet the requirement for one FRR prior to each launch of an HLS element. See AR Tab

108b67a at 105076 (“SpaceX’s three proposed FRRs—or one for each type of HLS element—were insufficient when SpaceX’s concept of operations will require 16 total launches”).

In addition to addressing the failure to include a sufficient number of FRRs, NASA also addressed funding limitations. See AR Tab 63 at 62886; AR Tab 64 at 62893. The SSA stated that “due to insufficient current year funding, NASA is unable to award a contract to SpaceX at the price SpaceX has proposed and with the specific phasing of milestone payments it has specified.” AR Tab 64 at 62893. The SSA indicated that SpaceX’s proposal contains “other outstanding milestone-related issues that, pursuant to the terms of the Option A solicitation, NASA could resolve during such negotiations.” Id. Due to these issues, the SSA authorized the Contracting Officer (“CO”) to engage in post-selection discussions with SpaceX.

The Agency allowed SpaceX the opportunity to revise its price, payment schedule, Review Plan, Performance Work Statement, and expenditure profile. See AR Tab 63 at 62886, 62888. In this post-selection negotiations letter, the CO provided SpaceX with the precise funding available for each year of the Option A contract, from Fiscal Year (“FY”) 2021 to FY 2025. See id. at 62888. The CO’s letter identified three issues for which SpaceX was requested to submit revised proposal sections: (1) prices for CLINs 0005 and 0010, (2) payment phasing to accommodate budget availability, and (3) FRRs for Supporting Spacecraft. Id.

The Agency engaged in post-selection discussions with only SpaceX; no other offeror was offered this opportunity. See Source Selection Statement, AR Tab 77. During the post-selection discussions with SpaceX, the Agency allowed SpaceX to revise a proposal that failed to meet material Solicitation requirements and was unacceptable into a proposal that purportedly met the Agency’s interpretation of the FRR requirements. See Letter to Open Negotiations to SpaceX, AR Tab 63. SpaceX took advantage of this opportunity and submitted a revised proposal, including a

revised payment schedule and two additional FRRs [REDACTED]

[REDACTED]. See SpaceX's revised proposal, AR Tabs 68-68f.

F. Despite NASA's Chief Engineer Concerns on the SpaceX Proposal's Risk to NASA and Unrealistic Schedule, SpaceX is Still Selected and Received an "Outstanding" Management Score.

On April 6, 2021, prior to the SpaceX issuing its revised proposals, NASA's Chief Engineer, Ralph Roe, based upon his review and understanding of SpaceX's proposal emailed the SSA, with a copy to the acting administrator of NASA, and provided the following assessment:

I believe the fact that SpaceX is building a spacecraft and rocket for a very different mission ([REDACTED] crew to Mars) than our missions to the moon (4 crew to the moon) *increases our risk significantly.* [REDACTED]

[REDACTED] Given SpaceX's performance the last two years I believe they will overcome these technical challenges but not on the schedule they suggest and not without us accepting significantly more risk than we would for a vehicle sized closer to what our mission really requires.

AR Tab 67 at 62900 (emphasis added). Notwithstanding this email from NASA's Chief Engineer that SpaceX's schedule is unrealistic and requires NASA to assume significant risk, the Administrative Record contains no written response from the SSA or the acting administrator to Mr. Roe. Even though SpaceX failed to propose compliant reviews as required by the Solicitation such that there was an increase in performance risk, and even though realism in scheduling is critical to the management evaluation scores, SpaceX's management score remained an "Outstanding." AR Tab 77 at 63044.

G. The Agency Made a Single Award to SpaceX In Spite of Communicating Intent to Offerors to Make Multiple Awards.

NASA's procurement documents and public statements repeatedly recognized that it was NASA's intent to award two HLS Option A awards. For example, the HLS Option A Source Selection Official stated, "by making three HLS base period contract awards that preceded the present Option A source selection, it was NASA's preference (as stated in the Option A BAA) to then down-select from among these contractors to two Option A awardees." See Source Selection Statement, AR Tab 77 at 63043.

Although the Agency purportedly desired "to preserve a competitive environment at this stage of the HLS Program, at the initial prices and milestone payment phasing proposed by each of the Option A offerors," NASA's current fiscal year budget at the time of proposal review and evaluation "did not support even a single Option A award." Id. at 63039 The SSA therefore decided to open price negotiations only with SpaceX, the offeror that had "the lowest initially-proposed price." AR Tab 77. The Agency did not enter into negotiations with any other offeror. See id.

After review of the price negotiations with SpaceX, which did not result in a lower price but did change the timing of some milestone payments, the SSA determined to award HLS Option A to SpaceX. See id. at 63049-50. Accordingly, on April 16, 2021, NASA finalized its conditional selection of SpaceX and selected SpaceX for the HLS Option A award, at an evaluated price of \$2.94 billion and a total award value of \$2.89 billion, despite its publicly stated intention to down-select to two providers to maintain competition. Id.

IV. ARGUMENT

A. **Jurisdiction and Standard of Review**

This Court has jurisdiction pursuant to 28 U.S.C. § 1491(b)(1). *See Distributed Solutions, Inc. v. U.S.*, 539 F.3d 1340, 1344 (Fed. Cir. 2008). To have standing to protest, “a plaintiff must demonstrate that it is an ‘interested party’ who suffered prejudice from a significant procurement error, and but for that error, ‘it would have had a substantial chance of securing the contract.’” *Kiewit Infrastructure West Co. v. U.S.*, 147 Fed. Cl. 700, 706 (2020) (citing *CliniComp Int’l, Inc. v. U.S.*, 904 F.3d 1353, 1358 (Fed. Cir. 2018)).

Here, Blue Origin has standing because it is an offeror that was next in line for award under the HLS Option A Broad Agency Announcement and could have been awarded a contract if NASA had proceeded as planned originally. As detailed below, but for the Agency’s waiver or relaxation of material requirements and milestones as well as the errors in evaluating Blue Origin’s and SpaceX’s proposals, Blue Origin would have a substantial chance of receiving the Option A BAA award, and therefore has standing to protest. *See CW Gov’t Travel, Inc. v. U.S.*, 110 Fed. Cl. 462, 481-82 (2013) (where protester alleged several instances of agency errors in evaluating its proposal, “if everything [protester] alleges in its protest is true, [protester] would have a substantial chance of receiving an award” and therefore has standing).

When reviewing a Motion for Judgment on the Administrative Record under Rule 52.1 of the Rules of the Court of Federal Claims (“RCFC”), “the court asks whether, given all the disputed and undisputed facts, a party has met its burden of proof based on the evidence in the record.” *Green Tech. Group, LLC v. U.S.*, 147 Fed. Cl. 231, 238 (2020) (citing *Integral Consulting Servs., Inc. v. U.S.*, 140 Fed. Cl. 653, 657 (2018)) (internal quotations omitted). The Court’s review “is limited to the administrative record,” and “[t]he Court must determine whether a party has met its burden of proof based on the evidence contained within the administrative record.” *Kiewit*

Infrastructure West Co., 147 Fed. Cl. at 707 (citing Bannum, Inc. v. U.S., 404 F.3d 1346, 1354-55 (Fed. Cir. 2005)).

In a bid protest, the Administrative Procedure Act’s (“APA”) standard of review of agency action applies. See id.; 28 U.S.C. § 1491(b). Under this standard, an agency’s procurement action may be set aside if it is “arbitrary, capricious, an abuse of direction, or otherwise not in accordance with law.” See id.; 28 U.S.C. § 1491(b)(4); 5 U.S.C. § 706(2)(A). To determine whether an agency’s actions were “arbitrary, capricious, or an abuse of discretion,” the Federal Circuit has explained that “relevant factors include: subjective bad faith on the part of the officials; the absence of a reasonable basis for the administrative decision; the amount of discretion entrusted to the procurement officials by applicable statutes and regulations; and proven violation of pertinent statutes or regulations.” Tolliver Grp., Inc. v. U.S., 151 Fed. Cl. 70, 86 (2020) (quoting Croman Corp. v. U.S., 724 F.3d 1357, 1359, 1363 (Fed. Cir. 2013)) (internal quotations omitted). When this Court reviews agency action under the APA, it must perform a “thorough, probing in-depth review” to determine “whether the decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment.” United Int’l Investigative Servs., Inc. v. U.S., 41 Fed. Cl. 312, 318-19 (1998) (quoting Citizens to Preserve Overton Park, Inc. v. Volpe, 401 U.S. 415-16 (1971)).

The arbitrary and capricious standard “is not a rubber stamp.” Overstreet Elec. Co. v. U.S., 47 Fed. Cl. 728, 742 (2000) (internal quotations omitted). Moreover, it does not require the court “to accept, in a Kierkegaardian leap of faith, bald assertions on a critical point that are not otherwise tied to the administrative record and that are at least in tension with, if not contradicted by, various aspects of that record.” Id. Indeed, to the contrary, the Supreme Court has stated that under the arbitrary and capricious standard, “the agency must examine the relevant data and

articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made.” Motor Vehicle Manufs. Ass’n v. State Farm Mutual Auto. Ins. Co., 463 U.S. 29, 43 (1983). Accordingly, an agency’s evaluation only is “entitled to deference” “if the underlying decisions properly are explained in the Administrative Record.” Wackenhut Servs., Inc. v. U.S., 85 Fed. Cl. 273 (2008); see also CRAssociates, Inc. v. U.S., 95 Fed. Cl. 357, 377 (2010) (refusing to give weight to contracting officer’s statement made after agency decision because “an essential premise of [APA] review presupposes that the agency will establish its rationale at, or prior to, the time of its decision – not after.”); J.C.N. Constr. Co., Inc. v. U.S., 60 Fed. Cl. 400, 405 (2004) (noting that the court “must view critically any post hoc rationalization”).

In addition, “[t]o prevail in a bid protest, the protester must show first, ‘a significant error in the procurement process[,]’, and second, ‘that the error prejudiced it.’” Kiewit Infrastructure West Co., 147 Fed. Cl. at 707 (quoting Data Gen. Corp. v. Johnson, 78 F.3d 1556, 1562 (Fed. Cir. 1996)). “When a bid protester alleges that the procuring agency violated a law or regulation,” the Court will review whether “a clear and prejudicial violation of applicable statutes or regulations” such that the protestor had a “substantial chance” of receiving the award but for that error. Id. (quoting Banknote Corp of Am. v. U.S., 365 F.3d 1345, 1351 (Fed. Cir. 2004)). Where the bid protest reveals an “irrational or arbitrary and capricious agency action has occurred, prejudice is presumed.” Caddell Constr. Co. v. U.S., 125 Fed. Cl. 30, 50 (2016).

B. SpaceX’s Proposal Was Noncompliant with the Solicitation, and NASA Arbitrarily and Unlawfully Waived Material Solicitation Requirements for SpaceX and No Other Offeror.

NASA decided to award a contract to SpaceX, even though SpaceX’s proposal contained numerous failures to meet Solicitation requirements, almost all of which NASA failed to uncover or assess in its evaluation of proposals. Among these errors, SpaceX proposed to conduct the Design Certification Review and numerous mandatory launch vehicle reviews (MSPDR, MSCDR,

SAR, LV Systems Readiness Review, Pre-Mate Readiness Review, and LRR) either *after* all supporting spacecraft launches will have occurred or several months later than specified and required by the Solicitation, which negates the purpose and benefit of these reviews. As detailed below, the plain language of SpaceX's proposal does not meet the requirements found in the plain language of the Solicitation.

The reasonableness of this interpretation of the Solicitation and SpaceX's proposal is confirmed by NASA's contemporaneous documents, which state that SpaceX's proposal was not consistent with the Solicitation's requirements, and GAO, which also confirmed that SpaceX's proposal did not include the requisite number of FRRs. There is no discussion in NASA's evaluation or selection documents in the Administrative Record of SpaceX's failure to timely perform these mandatory reviews for supporting spacecraft and launch vehicles. As the Court noted at the September 16, 2021 hearing, a void in the Administrative Record like this shows the arbitrariness and unreasonableness of the Agency's evaluation conduct.

An Agency is "strictly bound by the terms" of the solicitation, "regardless of the panel's view of the appropriateness of the standard [set out in the RFP]." Alfa Laval Separation, Inc. v. U.S., 175 F.3d 1365, 1368 (Fed. Cir. 1999) (embedded text in original) (citation omitted); L-3 Commc'ns EOTech, Inc. v. U.S., 83 Fed. Cl. 643, 652 (2008) (finding that the Court of Federal Claims "and GAO have repeatedly held" that "an agency's failure to follow the terms of its own Solicitation and selection of an offeror based on different requirements than those imposed upon the only other offer[s] are quintessential examples of conduct which lacks a rational basis.") (internal quotations omitted); 10 U.S.C. §2305(b)(1); FAR 35.016 ("Proposals received as a result of the BAA shall be evaluated in accordance with evaluation criteria specified therein.").

Simply put, an agency’s decision to “[w]aive[] a mandatory requirement of the solicitation for the benefit of only one offeror invalidates [the] procurement decision.” L-3 Commc’ns EOTech, Inc., 83 Fed. Cl. at 653 (quoting Alfa Laval, 175 F.3d 1365 at 1367-68 (1999)); 5 U.S.C. §706(2)(A). That is the result here. Furthermore, “[w]hen an agency decides to abandon or waive a solicitation requirement, it must advise all offerors of that decision and “provide a ‘coherent and reasonable’ explanation of why its decision was rational.” Fluor Intercontinental, Inc. v. U.S., 147 Fed. Cl. 309, 337 (2020) (quoting Naplesyacht.com, 60 Fed. Cl. at 472).

As discussed immediately below, NASA’s waiver of these requirements was improper. Moreover, as discussed in § IV.G, Blue Origin was prejudiced by NASA’s improper conduct. The Solicitation requires these milestone reviews and launch vehicle reviews to be conducted prior to the launch of the HLS. The term “HLS” includes the Integrated Lander (or elements thereof), Supporting Spacecraft, launch vehicles necessary for launch and delivery of the contractor’s Integrated Lander, and the Active-Active docking adapter (AADA). See AR Tab 27e at 32948.

1. SpaceX failed to meet the requirements for the Solicitation’s FRRs.

SpaceX’s proposal failed to meet the requirements for a Flight Readiness Review for the launch of each element of HLS – that is, for every launch – and, accordingly, should have been rejected as noncompliant with a mandatory and material Solicitation requirement. The Solicitation explicitly required FRRs be included in offerors’ proposals and integrated management schedules for all elements of HLS.¹ See AR Tab 27e, at 32972; AR Tab 27k at 33187. “An FRR is required prior to **each launch of an HLS element**” and each Flight Readiness Review must be completed

¹ Again, HLS includes “All objects, vehicles, elements, integrated systems, . . . the contractor’s Integrated Lander (or elements thereof), all Supporting Spacecraft, all launch vehicles necessary for launch and delivery of the contractor’s Integrated Lander (or elements thereof) and its Supporting Spacecraft, and the contractor’s Active-Active docking adapter (AADA) (if required for performance of the contractor’s crewed demonstration mission).” AR Tab 27e at 32948.

“2 weeks before first launch of an HLS element (L-2 weeks).” AR Tab 27k at 33187 (emphasis added) (“Propose multiple FRRs as required”). And, an FRR is required prior to each launch of an HLS element. AR Tab 27k at 33187.

The “Acceptance Criteria” for FRRs required offerors to demonstrate that “[t]he flight vehicle, launch vehicle, and support spacecraft (such a propellant storage, propellant transfer, and/or upper stage vehicles that provide transportation capabilities beyond the standard for orbit insertion) are ready for flight.” AR Tab 27e at 32972. Even if an offeror operates differently in the commercial context, the Solicitation establishes that NASA has ultimate responsibility to certify flight readiness for all launches, including launch vehicles and supporting spacecraft. See AR Tab 27e at 32949.

SpaceX did not include a Flight Readiness Review for each launch of each HLS element. See § III.C, supra. NASA should have determined that SpaceX’s proposal was not awardable as a result. See, e.g., Alfa Laval, 175 F.3d 1365.

NASA’s contemporaneous documents from the evaluation confirm that this interpretation is correct, with NASA itself stating that SpaceX’s proposal was not compliant with key Solicitation requirements. After over three months of evaluation, on March 22, 2021, the SEP’s PowerPoint briefing clearly reported that SpaceX was not compliant with the Solicitation because it was missing “reviews” that NASA required, specifically referencing that SpaceX’s proposal included “only [a] single FRR for the HLS lander and not the required FRRs for [its] **supporting spacecraft (depot and tanker)**.” AR Tab 52c at 62593 (emphasis added). Again, on April 1, 2021, the SEP’s final SpaceX evaluation report unambiguously stated that SpaceX’s proposal “is inconsistent with” and “not in accordance with” any SEP interpretation of the Solicitation’s FRR milestone requirement, which required supporting spacecraft be included. AR Tab 59c at 62813. SpaceX’s

sole FRR (for the HLS Lander only) occurring two weeks before its last and final of 16 launches, and entirely missing 15 other launches, was insufficient and noncompliant.

Moreover, during the procurement, NASA consistently held the view that the Solicitation treated each launch as requiring the Solicitation's critical reviews for all offerors. Documents produced for the first time as part of the Administrative Record in this action reveal that NASA significantly downgraded Dynetics' proposal (by assessing a significant weakness) because Dynetics had not proposed a critical review for each launch. For example, the SEP report for Dynetics reveals a "significant weakness" for not scheduling the critical Post-Test Review of Uncrewed Lunar Landing Test milestone "prior to the launch of [Dynetics'] first element of its HLS." AR Tab 59b at 62738-39.

NASA's contemporaneous evaluation documents – again, completely at odds with its new-for-litigation position – state that “[t]he solicitation defined ‘HLS’ as inclusive of any supporting *spacecraft* that are necessary for the contractor to execute its demonstration mission, including rendezvous, proximity operations, docking and undocking (RPODU), propellant transfer, and orbital maneuvering and transfer activities.” *Id.* at 62738-40. As a result, the SEP found that because Dynetics Centaur Tanker was a “supporting spacecraft,” Dynetics’ failure to conduct its “Post-Test Review of Uncrewed Lunar Landing Test” within the timing required by the Solicitation did not meet the Solicitation’s requirements. *Id.*; see also Dynetics SEP Presentation to the SSA, AR Tab 52b at 62523 (“Per the solicitation, supporting vehicles such as Centaur tankers are elements of the HLS system.”).

Even after it selected SpaceX, NASA knew that SpaceX’s proposal was not compliant with the FRR requirements. In asking for a revised proposal during discussions, NASA required SpaceX to include two more FRRs, one for each type of supporting spacecraft, for a total of three

FRRs. However, to comply with mandatory elements of the Solicitation as-written (and binding on the Agency), SpaceX's proposal should have included sixteen FRRs for its proposed sixteen total launches of HLS elements (including launch vehicles and supporting spacecraft). As such, SpaceX's initial and revised proposals failed to meet the requirement for one FRR prior to each launch of an HLS element, and it was thus noncompliant and unawardable. NASA's extraordinary waiver of the mandatory FRRs for exclusively SpaceX gave SpaceX a material advantage over other offerors in terms of cost, schedule, and technical. Had SpaceX met the Solicitation requirement, SpaceX's initial proposal cost would have increased by \$ [REDACTED] (SpaceX's cost for one FRR was \$ [REDACTED]).

Not only does the plain language show that SpaceX was not compliant, and not only do NASA's contemporaneous documents confirm that point, but GAO reached the same decision. When the parties disputed this issue at GAO, GAO ruled that SpaceX had not proposed the requisite number of FRRs and rejected NASA's new-for-litigation position that SpaceX's proposal was compliant. GAO determined that NASA's attempt to relax the Solicitation requirement to permit only 3 FRRs for SpaceX was improper. GAO found that NASA did in fact waive the Solicitation's FRR requirement, which required an FRR for each of SpaceX's 16 launches (not just one for the entire program, or just one per type of HLS element). AR Tab 108b67a at 105076. SpaceX's failure to propose this critical requirement meant that its proposal was not compliant with the Solicitation's requirements and its costs were significantly understated. See Mortgage Contracting Services, LLC v. U.S., 153 Fed. Cl. 89, 142 (2021) ("The Federal Circuit has stated that a proposal that fails to conform to the material terms and conditions of the solicitation should be considered unacceptable and a contract award based on such an unacceptable proposal violates the procurement statutes and regulations.") (internal quotations omitted). Having failed to propose

tasks in accordance with Solicitation requirements, the proposal was not compliant and should have been deemed ineligible for award. See, e.g., Centech Grp., Inc. v. U.S., 554 F.3d 1029, 1039 (Fed. Cir. 2009) (“To be acceptable, a proposal must represent an offer to provide the exact thing called for in the request for proposals, so that acceptance of the proposal will bind the contractor in accordance with the material terms and conditions of the request for proposals.”); Furniture by Thurston v. U.S., 103 Fed. Cl. 505, 517-18 (2012) (“It is blackletter law that a procuring agency may only accept an offer that conforms to the material terms of the solicitation.”). Because SpaceX’s proposal was not compliant, and should have been deemed ineligible for award, NASA’s decision to select SpaceX for award was arbitrary and capricious. See Oak Grove Technologies v. U.S., 2021 WL 3627111, at *17 (Fed. Cl. Aug. 2, 2021) (holding that agency’s selection of an unawardable proposal “violates the RFP or, at a minimum, ‘runs counter to the evidence before the agency’ and constitutes the very height of arbitrary and capricious decision-making.”) (quoting Ala. Aircraft Indus., Inc.-Birmingham v. U.S., 586 F.3d 1372, 1375 (Fed. Cir. 2009))).

NASA originally found SpaceX’s proposal was incomplete and not consistent with the Statement of Work’s critical safety reviews and requirements. Then, without any justification or rational basis, in order to select SpaceX, NASA waived and changed the critical FRR milestone requirements and reviews for SpaceX – and only SpaceX. In order to justify its action, Defendant proposed a new-for-litigation position and interpretation of the Solicitation it claims it always held that is not supported by a plain reading of the Solicitation, requires imparting language into the requirements, and is inconsistent with Defendant’s own actions during the evaluation period. No contemporaneous documents in the Administrative Record support that NASA position. NASA’s waiver of a key requirement for only one offeror is a quintessential example of arbitrary conduct that lacks a rational basis. See L-3 Commc'ns EOTech, Inc. v. U.S., 83 Fed. Cl. 643, 652 (2008).

NASA's actions are arbitrary, capricious, and not in accordance with the Solicitation or law.

2. SpaceX failed to meet the DCR requirements.

SpaceX's failure to satisfy the Solicitation's FRR requirement is the tip of the iceberg. Perhaps even more significant is SpaceX's failure to include supporting spacecraft and launch vehicles in another critical milestone review – the Design Certification Review, and NASA's decision to ignore these requirements and award a contract to SpaceX anyway. The DCR is the capstone review in the qualification and verification process which ensures that an offeror's HLS design meets functional and performance requirements and can be certified for human spaceflight, and the DCR is also a form of Safety and Mission Success Review. See AR Tab 27e at 32969; see also Wilhite Decl., Ex. 3, at ¶ 27-28.

The Solicitation provides that the DCR should be completed 9 months prior to the first HLS launch. See SOW, AR Tab 27e, at 32969 (“This milestone should be completed at first HLS launch – 9 Months (L-9)”); Attachment O, AR Tab 27k, at 33187 (“9 months before first HLS element launch (L-9 months)”). The date of completion SpaceX proposed for SpaceX's Design Certification Review is [REDACTED]. AR Tab 34d.46 at 55932 rows 128, 130. SpaceX's first HLS launch (depot starship) is scheduled for [REDACTED]. AR Tab 34d.46 at 55969, row 1968. Rather than 9 months, SpaceX proposed to complete the DCR [REDACTED] [REDACTED]. By conducting the review [REDACTED] rather than 9 months before the first HLS launch, SpaceX's DCR is conducted too late to provide any practical benefit to SpaceX's HLS launches because the DCR will not be performed in time for the results of that review to be taken into account for the HLS launches of supporting spacecraft and launch vehicles.

SpaceX's IMS contains errors – which are consistent throughout its Integrated Master Schedule in regard to the mandatory timing required by the Solicitation for other reviews as well – because SpaceX scheduled milestone reviews and launch vehicle reviews to be calibrated to its

Integrated Lander launch date rather than its first “HLS” launch date, a term which includes supporting spacecraft and launch vehicles. In other words, SpaceX failed to include supporting spacecraft and launch vehicles in numerous reviews throughout its IMS. See, e.g., Tab 34d.46 at 55932, 55969-70, rows 130, 2024 (showing that its [REDACTED] DCR is scheduled to occur [REDACTED] months prior to its Integrated Lander launch on [REDACTED], rather than several months prior to its first HLS launch).

All milestone reviews, like the DCR and FRR, must include a review of the supporting spacecraft and launch vehicles. See SOW, Tab 27e at 32964-65 (In SOW Section 5 “Milestone Reviews,” the Solicitation states “supporting spacecraft that are required in the contractor’s concept of operation to successfully complete the mission shall be included in the scope of the review for mission success.”); see also AR Tab 27e at 32970 (DCR Acceptance Criteria include “Launch vehicle interfaces with the HLS are verified”). Given that the DCR occurs [REDACTED] prior to the launch of SpaceX’s depot starship and [REDACTED] prior to the first launch of SpaceX’s tanker starships (rather than 9 months prior), SpaceX is not able to incorporate into the DCR a review of the depot starship or tanker starships, or the SuperHeavy Booster launch vehicles on which the tankers and depot are loaded.

This is another critical error which NASA either ignored in an effort to award to SpaceX or simply completely overlooked during the evaluation and NASA did not assess SpaceX any weaknesses or deficiencies for failure to implement a timely (and therefore useful) DCR in its proposal. As explained further in § IV.G below, Blue Origin was prejudiced by the NASA’s waiver of these requirements for SpaceX.

3. SpaceX’s proposal is equivocal as to whether the CDR will be conducted on an HLS-version of the Starship.

NASA arbitrarily disregarded the express ambiguity in SpaceX’s proposal concerning

whether SpaceX would fully comply with the requirement for milestone reviews for SpaceX's specific HLS Starship configuration. Specifically, SpaceX proposed milestone reviews of Starship "██████████." See SpaceX revised Review Plan, AR Tab 68b at 62911 ("██████████ ██████████
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██████████"). The ██████ milestone review "
██████████" is the Critical Design Review ("CDR"). See SpaceX
revised Review Plan, AR Tab 68b at 62911. In other words, SpaceX proposes that it may conduct
the Critical Design Review ██████████

This was not an optional requirement that SpaceX could skip by saying that it has made other rockets in the past. As stated in the Solicitation’s Statement of Work, the CDR “demonstrates that the maturity of the design is appropriate to support proceeding with full-scale fabrication, assembly, integration, and test.” AR Tab 27e at 32966-67. Yet, SpaceX proposed testing [REDACTED]

[REDACTED]. SpaceX's proposal would allow it to conduct the CDR [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]. If the CDR is conducted on [REDACTED], rather than [REDACTED]
[REDACTED], how

can NASA reasonably determine that the design is mature and appropriate for the HLS mission? The Administrative Record is silent on this issue. This inconsistency with Solicitation requirements in SpaceX's proposal has potentially significant consequences for risk and schedule, yet NASA never assessed or considered this inconsistency in its evaluation. This is yet another critical example of SpaceX's proposal ignoring Solicitation requirements with far-reaching consequences, and NASA's arbitrary failure to evaluate those errors in SpaceX's proposal.

4. SpaceX failed to meet numerous launch vehicle review requirements.

In addition to waiving or ignoring the FRR and DCR milestone requirements for supporting spacecraft and their launch vehicles, NASA also disregarded six other important review requirements related to the Mission Specific Preliminary Design Review ("MSPDR"), Mission Specific Critical Design Review ("MSCDR"), System Acceptance Review, Launch Vehicle Systems Readiness Review, Pre-Mate Readiness Review, and Launch Readiness Review. See Wilhite Decl., Ex. 3 at Attachment A (*Summary of SpaceX IMS Milestone Requirements and Reviews*).

These requirements for these reviews are described in Section 10 of the SOW because they are related to launch vehicle processing, integration, and operations. The Solicitation requires use of a modified commercial launch vehicle. SOW, AR Tab 27e at 33005 ("The contractor shall secure a commercial launch vehicle service for transportation of HLS module(s) or integrated landing system to lunar orbit"); id. at 33007 ("The HLS contractor shall provide commercial launch vehicle transportation services to accomplish the mission."). Such launch vehicles must be modified from their commercial version in order to be integrated with each offeror's HLS, including supporting spacecraft, to be used for the HLS mission. The modified, mission-specific launch vehicles must go through the review process outlined in SOW Section 10, which includes the MSPDR, MSCDR, System Acceptance Review, Launch Vehicle Systems Readiness Review,

Pre-Mate Readiness Review, and Launch Readiness Review.

SpaceX scheduled dates for these reviews shows that it calibrated these dates for these reviews to its Integrated Lander launch date, rather than its first HLS launch date, thereby again failing to incorporate the initial HLS launches in these reviews. SpaceX scheduled these critical reviews several months later than is required by the Solicitation, often after the 15 supporting spacecraft launches will have occurred. For example, the Mission Specific Preliminary Design Review must occur no later than 18 months prior to SpaceX's first HLS launch, i.e., [REDACTED] (L-18 months). See SOW, AR Tab 27e at 33009. But SpaceX's proposal scheduled its MSPDR for [REDACTED]. AR Tab 34d.46 at 55969, row 1936.

Pursuant to the Solicitation, the MSCDR must occur no later than [REDACTED] (L-12 months). See AR Tab 27e at 33010. But SpaceX scheduled its MSCDR for [REDACTED]. AR Tab 27k at 55969, row 1937. Further, the MSCDR must be performed "prior to design freeze and before significant fabrication activity begins" because the contractor must "present a final detailed design using drawings, analyses, and evaluation testing that shows the design meets final performance and interface specifications, safety requirements, and mission objectives." AR Tab 27e at 33010. However, SpaceX will [REDACTED] almost [REDACTED] before the MSCDR is conducted – [REDACTED] begins [REDACTED] and [REDACTED] begins [REDACTED] AR Tab 34d.46 at 55969, rows 1954 and 1955. [REDACTED] [REDACTED]. See AR Tab 34d.46 at 55969-70. In other words, SpaceX proposed [REDACTED] well before NASA approved the final design to ensure the launch vehicles would meet performance, functional, and schedule requirements. This is a clear and significant violation of the Solicitation requirements, which NASA either disregarded or overlooked.

Similarly, NASA's evaluation failed to consider the other launch vehicle reviews which occurred after the 15 depot and tanker starship launches had occurred. In accordance with the Solicitation, SpaceX's System Acceptance Review must occur no later than [REDACTED] (L-4 months). See AR Tab 27e at 33010. But for SpaceX it is scheduled for [REDACTED].² See AR Tab 34d.46 at 55969, row 1938. The "Launch Vehicle Systems Readiness Review" are required to be conducted to "demonstrate that the launch site and launch vehicle are ready to proceed with launch vehicle processing activities at the launch site." See AR Tab 27e at 33011. However, SpaceX scheduled this review to occur on [REDACTED], which excludes 15 of SpaceX launches. AR Tab 34d.46 at 55969 at 1939. The "Pre-Mate Readiness Review" is to occur "no[] later than spacecraft to LV mate minus 1 week, and is "to demonstrate the launch site and launch vehicle are ready for spacecraft mechanical and electrical integration." AR Tab 27e at 33011. However, SpaceX scheduled this review to occur once on [REDACTED], which excludes 15 of SpaceX's launches. AR Tab 27k at 55969 at 1940. Last, the "Launch Readiness Review" is required to "occur LRR one day prior to launch to verify all actions from the FRR are complete and final processing has been successfully completed." AR Tab 27e at 33011. However, SpaceX scheduled this review to occur once on [REDACTED], which, similar to the FRRs that it is tied to, excludes the required applicability to 15 SpaceX launches. AR Tab 34d.46 at 55969 at 1941. See also Wilhite Decl., Ex. 3 at Attachment A (*Summary of SpaceX IMS Milestone Requirements and Reviews*).

By ignoring these required deadlines for these launch vehicle reviews, NASA will have no approval or oversight authority for up to 15 launches. Further, NASA will not even approve the

² All of SpaceX's supporting spacecraft launches occur [REDACTED] will be conducted on [REDACTED], except one. SpaceX's 15th supporting spacecraft launch occurs on [REDACTED]. AR Tab 34d.46 at 55970, row 2010.

final launch vehicle design before SpaceX begins manufacturing the launch vehicles. This creates enormous, and completely unassessed, risk to the HLS mission. SpaceX's proposal should have received multiple deficiencies and significant weaknesses for these errors. Instead, NASA arbitrarily and improperly awarded SpaceX with an "Outstanding" rating for the Management factor, which includes schedule.

NASA's failure to assess this error in SpaceX's proposal disregarded and waived these review requirements for SpaceX. This again gave SpaceX tremendous and unearned technical, schedule, and price advantages. As discussed in the Brent Sherwood Declaration (Exhibit 2), had Blue Origin known that NASA would radically depart from its documented and traditional requirements for approving systems for flight missions, Blue Origin would have proposed a fundamentally different technical solution. See Brent Sherwood Declaration ("Sherwood Decl."), Appendix Ex. 2, ¶ 8.

NASA was required to evaluate competitive proposals and make an award based solely on the factors specified in the solicitation. 10 U.S.C. §2305(b)(1); see also FAR 35.016 ("Proposals received as a result of the BAA shall be evaluated in accordance with evaluation criteria specified therein."). Agency actions which fail to do so are considered arbitrary, capricious, and unlawful, and must be set aside. 5 U.S.C. §706(2)(A). NASA failed to evaluate SpaceX's proposal in accordance with the Solicitation's requirements as written and, therefore, was arbitrary, capricious and unlawful, and must be set aside.

C. NASA Unlawfully Engaged in Improper and Unequal Discussions with Only SpaceX.

NASA improperly held post-selection discussions with only SpaceX, allowing SpaceX to change its technical proposal, management proposal, and pricing. Contrary to NASA's litigation position at GAO, this constituted discussions. In a negotiated procurement with competitive

proposals, discussions occur when an offeror is allowed to materially revise its proposal, especially to resolve a noncompliance with solicitation requirements. This Court has noted that “the acid test for deciding whether an agency has engaged in discussions is whether the agency has provided an opportunity for quotations or proposals to be revised or modified.” WaveLink, Inc. v. U.S., No. 20-749C, 2021 WL 2762814, at *15 (Fed. Cl. June 24, 2021) (quoting Consol. Eng’g Servs., Inc. v. U.S., 64 Fed. Cl. 617, 626 (2005)). If the Agency decides to award the contract after holding discussions, it must hold discussions with all responsible offerors within the competitive range. Id.

The facts here are not in dispute. The Agency concedes that it conducted exchanges with only one offeror, SpaceX, and allowed SpaceX to revise its price, management, and technical proposals. However, the Agency argues discussions were not held here because the Solicitation was issued under a BAA. The Agency claims that under a BAA, the rules applicable to negotiated procurements and competitive proposals do not apply because a BAA can never be conducted as a negotiated procurement with competitive proposals. See AR Tab 27 at 24480 (“This solicitation is a BAA. BAAs are not negotiated procurements conducted on the basis of competitive proposals”). Further, the Agency claims that because the Solicitation specifically allowed for “post-selection negotiations,” which the Agency argues are not discussions, the Agency was allowed to treat offerors unequally by entering into exchanges with only one offeror and permitting that offeror to revise material portions of its proposal, including price.

The issues here are analogous to the questions considered in Tolliver Group, Inc. v. U.S., 151 Fed. Cl. 70 (2020). In Tolliver, the Government attempted, “for the purposes of litigation, [to] recharacterize the [subject] procurements as” purchases that did not have to follow the rules for negotiated procurements, because they were not FAR Part 15 procurements. Tolliver Grp.,

151 Fed. Cl. at 92. The Court rejected that position, noting that the procurement involved a solicitation that sought “competitive proposals pursuant to RFPs, contemplated negotiations, and awarded contracts based upon those proposals,” and ultimately determining the Government was obligated to follow the rules for negotiated procurements without regard to the “party characterizations or mere contract formalisms,” as those “cannot alter the substance of a transaction.” Id. (quoting Aiken v. U.S., 4 Cl. Ct. 685, 694 (1984)).

Here, the issue is the Court’s basis for applying the “discussion” standards under Tolliver to negotiated procurements in a BAA procurement: (1) the Agency is required to treat offerors impartially, fairly, and equitably under FAR Part 1.602-2(b), and in order to do so the Court must apply negotiated procurement standards where a negotiated procurement with competitive proposals occurred, even if conducted in a BAA context; and (2) under 10 U.S.C. § 2305(b)(4), which applies in the context of competitive proposals, NASA was required to hold discussions with all offerors because discussions were held with SpaceX. Similar to Tolliver, 10 U.S.C. § 2305(b)(4) is applicable because NASA required the submission of competitive proposals and held discussions. Thus, NASA’s argument – that the FAR Part 15 rules for negotiated procurements do not apply because this procurement was issued as a BAA – is unavailing. See Tolliver, 151 Fed. Cl. at 92 (finding the government’s argument – that 10 U.S.C. § 2305(b)(2) is not applicable to a typical FAR Part 8 procurement – unavailing, where “the government did not follow normal FAR Part 8 procedures.”). The HLS Option A Solicitation must be subject to the procurement standards applicable to negotiated procurements, including the definition of “discussions” and the requirement for discussions to be held with all offerors if they are conducted with any offeror.

This was a negotiated procurement with competitive proposals. The Solicitation requested proposals and explicitly contemplated and reserved the right to conduct discussions. See id. at 90 (“A solicitation that contemplates the submission of proposals and the possibility of discussions is a negotiated procurement.”). Offerors also prepared competitive proposals for, and were evaluated against, *highly-specific common requirements* contained in the SOW and numerous other requirements documents, which are typical in a negotiated procurement but are not contemplated under BAA procedures. See FAR 35.016 (“proposals need not be evaluated against each other since they are not submitted in accordance with a common work statement”). Further, unlike in a typical BAA where a cost realism and reasonableness analysis is conducted, the Solicitation here conducted a firm-fixed price comparison, indicating that offerors were submitting competitive proposals. See Tolliver, 151 Fed. Cl. at 92 (“The government's attempt to distinguish the solicitations at issue from a procurement seeking competitive proposals is particularly unavailing where, as here, the government did not follow normal FAR Part 8 procedures.”).

Moreover, it is the substance of the Agency’s actions, not the Agency’s characterizations or mere contractual formalisms, which will determine whether a negotiated procurement occurred. See id. (holding that the agency cannot recharacterize its procurement and assert a jurisdictional bar applicable to a typical FAR Part 8 procurement that seeks only quotations, where the agency here engaged in a negotiated procurement with discussions and competitive proposals and thus was subject to FAR Part 15 standards for negotiated procurements); see also Aiken v. U.S., 4 Cl. Ct. 685, 694 (1984) (“party characterizations or mere contract formalisms cannot alter the substance of a transaction”); Burstein v. U.S., 622 F.2d 529, 537 (Ct. Cl. 1980) (“[W]e must look to the substance of the transaction; the true nature of the arrangement cannot be altered by mere contractual formalisms.”).

In this negotiated procurement, the Agency indisputably held discussions where it allowed SpaceX the opportunity to revise its price, payment schedule, Review Plan, Performance Work Statement, and expenditure profile. See AR Tab 63. SpaceX submitted a revised proposal, including a revised payment schedule and two additional Flight Readiness Reviews at a cost of about \$ [REDACTED] (although SpaceX chose to absorb this cost). Although these exchanges fit squarely within the definition of “discussions,” the Agency claims these exchanges were instead post-selection negotiations because the Solicitation defined as “post-selection negotiations” any exchanges entered into with offerors who had been selected for potential contract award. See AR Tab 108b55 at 104673. However, the Agency’s exchanges with SpaceX were in fact discussions.

The Agency’s failure to hold discussions with Blue Origin in violation of federal statute and case law prejudiced Blue Origin because it would have improved its proposal, including price, resulting in a substantial chance for award. See AR Tab 97a at 63452 (offering to “bridge the HLS budgetary funding shortfall by waiving all payments in the current and next two government fiscal years up to \$2B to get the program back on track right now”). Had the Agency engaged in negotiations with Blue Origin as it did with SpaceX, Blue Origin would have revised and enhanced those aspects of its technical and management proposals rated as having a weakness or significant weakness. Sherwood Decl., Ex. 2, ¶ 14 (providing examples); see also Smith Decl., Ex. 1, ¶ 22. Also, it would have made clear in its proposal that the purported advance payment issue discussed in Blue Origin’s SEP report were not advance payments but were long-lead item procurement payments. See id.

The Agency’s actions were arbitrary and unreasonable and violated fundamental procurement principles and regulations regarding fairness to prospective offerors. One of the guiding principles of the Federal Acquisition Regulation System is the Government must

“[c]onduct business with integrity, fairness, and openness.” FAR 1.102. Also, FAR 1.102-2(c)(3) mandates that “[a]ll contractors and prospective contractors shall be treated fairly and impartially” FAR 1.602-2 states “Contracting officers shall . . . [e]nsure that contractors receive impartial, fair, and equitable treatment.”

D. NASA Failed to Evaluate SpaceX’s Proposal in Accordance with the Solicitation.

Where an Agency fails to conduct the procurement in accordance with the terms of the Solicitation, the agency’s action must be set aside as arbitrary, capricious and unlawful. 5 U.S.C. § 706(2)(A); 2M Research Services, LLC, 139 Fed. Cl. at 478-79 (finding “an agency’s technical evaluations must be reasonable and consistent with the relevant evaluation criteria”) (citing Banknote Corp. of Am. v. US, 56 Fed. Cl. 377, 386 (2003), aff’d, 365 F.3d 1345 (Fed. Cir. 2004) (“It is hornbook law that agencies must evaluate proposals and make awards based on the criteria stated in the solicitation.”). When taken together, these arbitrary and unlawful decisions show that NASA’s award decision lacked a rational basis and were contrary to law or regulations, and, thus prejudiced Blue Origin. See USfalcon, Inc. v. U.S., 92 Fed. Cl. 436, 450 (2010) (finding that multiple agency procurement errors might cumulatively establish prejudice).

1. NASA Assigned SpaceX’s Management Proposal An “Outstanding” Rating Despite Fifteen (15) Missing FRRs And Noncompliance with Solicitation Requirements for Performance of other Milestone and Critical Reviews.

In a striking display of arbitrary decision-making, NASA assigned SpaceX’s management proposal an “Outstanding” adjectival rating despite SpaceX’s Integrated Management Schedule’s blatant failure to meet numerous milestone review and mission specific launch vehicle review requirements as mandated by the Solicitation. SpaceX did not just improperly schedule one review. SpaceX failed to properly schedule over 60 reviews the Solicitation required (15 FRRs, the DCR, the MSCDR, the MSPDR, the SAR, 15 SRRs, 15 PMRRs, and 15 LRRs). Compounding

the matter further, NASA Chief Engineer, Ralph Roe, informed the SSA that, because SpaceX proposed a spacecraft and rocket for a different mission (Mars), the technical challenges SpaceX would face cannot be overcome “on the schedule [SpaceX] suggest[ed] and not without [NASA] accepting significantly more risk than [NASA] would for a vehicle sized closer to what our mission really requires.” AR Tab 67 at 62900. The schedule risks inherent in SpaceX’s proposal were even greater than Mr. Roe knew, because NASA was apparently unaware that SpaceX’s proposal contained numerous and important schedule errors. Under these circumstances, NASA’s assignment of an “Outstanding” to SpaceX’s management proposal, where “Schedule Management” is the second area of focus listed, is arbitrary, irrational, and not in accordance with the Solicitation.

In its evaluation process, NASA assigned adjectival ratings for management proposals. See Figure 7, AR Tab 35d at 61999, supra. An “Outstanding” adjectival rating was reserved for a “thorough and compelling proposal of exceptional merit that fully responds to the objectives of the BAA. Proposal contains strengths that far outweigh any weaknesses.” Id. There are specific Areas of Focus for evaluation within the technical and management proposals. See, supra, Figure 5, AR Tab 35d at 61996, supra. The second listed Areas of Focus for evaluating management proposal’s is “Schedule Management.” Id. Furthermore, the Solicitation states that “[i]n light of NASA’s goal of a 2024 crewed demonstration mission, the proposed timing of the Offeror’s crewed demonstration mission shall be accelerated as much as possible to attempt to meet that goal **while assuring schedule realism and appropriately mitigating risks.**” AR Tab 27 at 24450 (emphasis added). Accordingly, the offeror should propose “an accelerated, **yet realistic**, schedule.” Id. (emphasis added). However, the Administrative Record shows that the scheduling

aspects of SpaceX's management and technical proposals are anything but realistic and do not mitigate NASA's risks. See generally §§ III.B.3, III.E.

When comparing SpaceX's IMS to the Solicitation's milestone and other review requirements, SpaceX chose to forego 15 required reviews for each of the FRRs, SRRs, PMRRs, LRRs. Additionally, SpaceX also scheduled the DCR, the MSCDR, the MSPDR, and the SAR in violation of and so far past the Solicitation's explicit required deadlines that the benefit of those reviews would be entirely eliminated for the vast majority of the launches. With such blatant and flagrant noncompliance errors and omissions for numerous important reviews, including critical safety reviews, on its schedule, SpaceX's proposal cannot reasonably be said to be "thorough", "compelling" and "fully respon[sive] to the objectives of the BAA."

Additionally, NASA's assignment of an "Outstanding" to SpaceX's management approach is in contravention of its own stated goal of a "realistic schedule" that appropriately mitigates risk. NASA's own Chief Engineer informed the SSA on April 6, 2021, that SpaceX's proposed rocket (which was [REDACTED] times larger than the mission required) carried numerous technical challenges that SpaceX would not be able to overcome "on the schedule [SpaceX] suggests[ed] and not without [NASA] accepting significantly more risk than we would for a vehicle closer to what our mission really requires." AR Tab 67 at 62900. Therefore, based on NASA's own statement, SpaceX proposed an unrealistic schedule that did not appropriately mitigate risk. Furthermore, SpaceX's proposal could not have "fully responded to the objectives of the BAA" when the very spacecraft and rocket it proposed is "for a very different mission ([REDACTED] crew to Mars) than [NASA's] mission to the moon (4 crew to the moon)."

Simply put, NASA's determination that SpaceX's proposal merited an "Outstanding" rating was arbitrary, capricious, and contrary to law or regulation where SpaceX did not propose

over 60 critical reviews as required by the Solicitation and after NASA's own Chief Engineer's determination that SpaceX's proposal did not propose a realistic schedule that appropriately mitigated risk. See ANHAM FACO v. U.S., 144 Fed. Cl. 697, 716 (2019) (finding that agency improperly credited awardee with an "Outstanding" rating where proposal failed to meet a standard of the RFP, prejudicing plaintiff).

2. NASA Assigned Only A "Weakness" For SpaceX's Failure To Include 15 Required FRRs.

As previously discussed, the Solicitation clearly stated that "[a]n FRR is required prior to each launch of an HLS element." AR Tab 27k at 33187. SpaceX's proposal included only one FRR, scheduled for two weeks before the launch of the HLS Lander Starship in [REDACTED]. AR Tab 34d.46 at 55969, row 1943. It did not include any FRRs prior to any of the 15 additional required launches of its supporting spacecraft. Id. at 55931-73. The SEP report notes in reference to the FRRs that "one of [SpaceX's management approach's] proposed milestones was arguably inconsistent with the solicitation's required milestones." AR Tab 59c at 62806. The SEP assigned a "Weakness" to this aspect of the management proposal. Id. at 62812-13. However, under the terms of the Solicitation, SpaceX's proposal should have been unawardable for failing to conform to the Solicitation's requirements. See AR Tab 27 at 24480 ("Offerors are hereby notified that proposals evaluated as having one or more deficiencies are unawardable.").

Assigning a "Weakness" to the glaring failure by SpaceX to propose required reviews that should have made its proposal unawardable altogether, or at the very least a Significant Weakness, is irrational. Additionally, although the FRRs are a critically important part of the Integrated Master Schedule ("IMS"), they are one of many highly-coordinated launch events that must occur in succession according to the Solicitation's timing requirements. NASA's evaluation did not account for how adding multiple required FRRs would have necessarily required SpaceX to revise

its entire technical approach and management schedule. Instead, NASA elected to rescind (for SpaceX alone) the Solicitation's original FRR requirement that SpaceX failed to meet and to substitute its newly created "delta" FRR requirement and allow SpaceX to revise its proposal.

3. NASA Overlooked and Failed to Assign SpaceX Any Weakness for Solicitation Noncompliance in Failing to Properly Schedule Numerous Other Important Review Required by the Solicitation in Addition to FRRs.

In addition to waiving the Solicitation's FRR requirement only for SpaceX, NASA failed to assign weaknesses to, or even address, the several other milestone reviews required by the Solicitation that SpaceX failed to propose or schedule in a compliant way, accepting and effectively waiving those noncompliant reviews for SpaceX. Specifically, SpaceX failed to properly schedule the DCR, MSPDR, MSCDR, SAR, SRRs, PMRRs, and LRRs in accordance with the terms and requirements of the Solicitation. See Wilhite Decl., Ex. 3 at Attachment A.

For example, the Solicitation required the DCR to be completed "9 months before first HLS element launch (L-9 months)," but SpaceX scheduled its review to be completed on [REDACTED], [REDACTED], prior to the start date for its first HLS element launch. Compare AR Tab 27e at 32969, with AR Tab 34d.46 at 55932, row 128. Moreover, the Solicitation required an MSPDR to be conducted in [REDACTED] (L-18 months), but SpaceX scheduled this review for [REDACTED], at least [REDACTED] too late. Compare AR Tab 27e at 33009, with AR Tab 34d.46 at 55969, row 1936. In addition, the Solicitation required an MSCDR to be performed in [REDACTED] (L-12 months), but SpaceX scheduled this review for [REDACTED], again, at least [REDACTED] late. Compare AR Tab 27e at 33010, with AR Tab 34d.46 at 55969, row 1937. These are just three of several examples of critical reviews required by the Solicitation that were not compliant with the Solicitation as proposed by SpaceX. See Wilhite Decl., Ex. 3 at Attachment A.

As discussed above, these critical milestone reviews are not minor aspects of the proposal. If attention is paid specifically to the Design Certification Review (DCR), as just one example, this point becomes clear. The Statement of Work provides that, like FRRs, the DCR are a form of Safety and Mission Assurance review where, among other things, the entire final design is reviewed, hazards identified and the means for addressing those hazards are addressed:

“the contractor shall present the final design and operations scenario; all identified hazards, hazard causes, and critical items; the means for eliminating, reducing, or controlling the risk has been defined and implemented; verifications have been completed or a closure plan, utilizing a Safety Verification Tracking Log (SVTL), including estimated closure date (ECD) and constrained operations, are concurred with by the SERP.”

AR Tab 27e at 32993; see also Wilhite Decl., Ex. 3, ¶ 27. In short, the DCR ensures the entire design is in compliance with the functional and performance requirements. See Wilhite Decl., Ex. 3, ¶ 27. As a result, it makes sense that the DCR must occur prior to the launch of the first HLS element because, if it were not, then parts of the design could launch without the benefit of the DCR approval and hazard assessment. However, that improper result is exactly what SpaceX’s schedule proposed. SpaceX’s proposal scheduled the DCR [REDACTED] too late and [REDACTED] prior to the start date for the first HLS element launch. Therefore, if SpaceX’s noncompliant schedule were followed, SpaceX would conduct numerous HLS element launches that cannot benefit from the important DCR. Furthermore, the elements SpaceX would be launching during this time would in fact link up with their HLS lander, which will carry astronauts. Therefore it is plainly reasonable that all HLS elements are subjected to a timely implementation of the Safety and Mission Assurance reviews.

Despite these multiple glaring omissions of these important reviews, NASA failed to assign even a Weakness to the missing critical reviews. The Administrative Record fails to show any mention of these issues. Instead, NASA rated SpaceX’s Management Proposal as “Outstanding”

without mention of SpaceX's wholly noncompliant schedule beyond the FRRs, and ultimately made the award to SpaceX, effectively ignoring or waiving each of these critical review requirements imposed by the Solicitation. That determination was arbitrary, capricious, unreasonable and contrary to law or regulation.

4. NASA Arbitrarily Evaluated Other Technical Elements In Favor of SpaceX And Against Blue Origin.

In addition to NASA's arbitrary and unfair evaluation of SpaceX's proposal relating to FRRs and other critical milestone reviews, the Administrative Record reveals a number of errors in the technical evaluations of SpaceX's proposal demonstrating a pattern of unfair treatment trending to favoritism for SpaceX. For example, NASA disparately and unequally analyzed SpaceX's and Blue Origin's communication link non-closures. Additionally, NASA improperly double counted the same positive attributes of SpaceX's proposal to assign multiple strengths.

To start, NASA assigned two different ratings for SpaceX and Blue Origin for the same purported shortcoming in their respective proposals regarding communication links. The SEP indicated that "[d]uring all portions of the mission, HLS is required to be able to communicate concurrently with Mission Systems, Suits, and the lunar orbiting crew occupying Orion." AR Tab 59c at 62793. In their Technical Proposals, both SpaceX and Blue Origin had communication links that did not close; SpaceX had two non-closing links out of six, while Blue Origin had four. Compare AR Tab 59a at 62654 (as to Blue Origin), with AR Tab 59c at 62793 (as to SpaceX). Unlike Blue Origin, SpaceX's radio frequency communication system did not work because it relied on the Gateway, which was specifically prohibited by the Solicitation. See AR Tab 59c at 62793 ("[SpaceX's] proposed communications architecture relies upon Gateway as a relay, which contravenes BAA section 4.4.3.1, p. 25."). In other words, because SpaceX's communications system impermissibly relies on the Gateway, SpaceX's proposal violated the Solicitation and

proposed a completely non-functioning communication system. However, while Blue Origin was assigned a “Significant Weakness” for this issue, SpaceX received only a “Weakness.” Compare AR Tab 59a at 62654 (as to Blue Origin), with AR Tab 59c at 62793 (as to SpaceX). The disparate treatment is striking; the Agency treated offerors unequally as to this aspect of their technical evaluations and failed to provide a reasonable explanation for doing so. Without such unequal and unfair treatment, SpaceX’s technical proposal would have received a lower rating. However the pattern of apparent unfairness did not stop there.

Additionally, NASA improperly awarded SpaceX multiple credits for the same positive attributes of its proposal. For example, the Agency awarded SpaceX a “Significant Strength” for “Proposed Capability Exceeds NASA Requirements for Threshold Values and Meets NASA’s Goal Values in Numerous Key Areas.” AR Tab 59c at 62779. The features of SpaceX’s proposal the agency cited for this Significant Strength include the same features cited later for other strengths, such as:

- Allow for a landed cargo capacity of [REDACTED]. This dramatically exceeds the requirement, which will offer significant flexibility for manifesting equipment to support science and EVA operations.
...
- Provide for a mass and volume allocation for returned science payload which meets the current goal values. It is also possible to increase the returned science payload mass allocation by leveraging the offeror’s ability to exceed the cargo capacity requirement; however, Orion Orion’s [*sic*] return mass capability will limit the utility of exceeding the sample return mass requirement in 2024. This capability represents an increased science return value for the Government.
...
- Allow for the delivery of [REDACTED] and [REDACTED] of science payloads. The mass capacity meets the threshold while the provided volume exceeds the volume required. Additionally, the cargo mass margins can also be converted into science cargo to exceed threshold for mass. This additional capability can be leveraged to manifest more capable science tool sets enhancing the productivity of the EVAs performed.

Id. at 62780-81. In this Significant Strength, the Agency praises the same feature repeatedly –

SpaceX's increased ability to deliver and return an increased science payload. SpaceX is also awarded a separate "Strength" in the following section, titled "Cargo Allocation Strongly Supports Scientific Payload Delivery and Return." *Id.* at 62781. The Agency double counted this attribute to award SpaceX's technical proposal both a "Significant Strength" and a "Strength." This demonstrates NASA's tendency to unduly credit the positive aspects of SpaceX's proposal in an unfair manner.

E. NASA Unlawfully Refused to Amend the Solicitation to Allow Offerors to Revise Their Proposals When NASA's Requirements Changed.

NASA requirements for the Option A work changed, in the form of significantly changed funding and waiver of several Solicitation requirements for SpaceX, but NASA never told the other offerors about the changed requirements. Had the Agency amended the Solicitation to accurately describe its minimum needs with regard to the reduced number of needed FRRs, and the reduced requirements related to the DCR and other mandatory reviews, Blue Origin would have changed its technical and management proposal, and its price to its competitive advantage.

Regarding the revised funding amounts, the Administrative Record shows that the Agency planned and confirmed throughout the HLS procurement that, based on its requirements and needs, it intended to award two HLS Option A awards. The Administrative Record produced in this action now shows that early in the evaluation process NASA knew that based on funding information known only to NASA, it would be unable to make two awards due to funding constraints. See AR Tab 50. NASA's March 9 letter to OMB states that, in view of FY 2021 and anticipated future year funding levels, it will be "extremely challenging to select multiple human landing system (HLS) Option A providers" and that NASA would make at least "one award for a demonstration mission." AR Tab 50 at 62424-25. Later messages between the OMB and the SSA (K. Lueders) during March 19 to 21, 2021 show that OMB was aware and understood that the SSA

was struggling with the funding situation, and was considering “one award vs two.” AR Tab 54 at 62599.

The Source Selection Authority’s contemporaneous statement admits that “NASA’s current fiscal year budget did not support even a single Option A award.” AR Tab 77 at 63039 (emphasis added); *id.* at 63043 (stating that “NASA’s fiscal year 2021 appropriations and appropriations indications for future fiscal years that span the Option A period of performance are incongruent with NASA’s Option A acquisition strategy”). When the Agency cannot make any award due to funding, it is fair to say that its circumstances and requirements have fundamentally changed. Concurrent with these funding issues, and perhaps motivated by them, the Agency waived the Solicitation’s FRR requirements for SpaceX thereby potentially saving the Agency approximately [REDACTED] – money the Agency did not have – for the 13 or so FRRs that the Agency’s waiver allowed SpaceX to avoid. Had the Agency enforced the FRR requirements, its funding shortfall would have been exacerbated and an HLS Option A contract would have been even less awardable.

Based on these changes in its needs, NASA was required to either notify all offerors of the change in circumstances and requirements or to amend the Solicitation, once it became aware of these changes. But where, as here, an agency does not do that and takes action, even though the solicitation no longer reflected the agency’s requirements, the agency acts improperly. *See, e.g., Medline Indus., Inc. v. U.S.*, --- Fed. Cl. ---, 2021 WL 3483429, at *10, 13 (July 30, 2021) (ruling that agency acted improperly when it failed to amend or resolicit the solicitation’s requirements to reflect the current status and timeline).

Under applicable precedent, the changed circumstances present here required NASA to notify all offerors of the changed requirements through a required amendment to the Solicitation

or through discussions. Although Court of Federal Claims precedent in this area is limited, GAO has considered the issue in numerous decisions. For example, the Agency's obligation to advise offerors of its changed conditions due to unavailability of funding was confirmed by GAO's decision in Joint Action in Community Service, Inc., B-214564, 84-2 CPD ¶ 228, relief recommendation modified, but otherwise affirmed on reconsid., B-214564.2, Jan. 3, 1985, 85-1 CPD ¶ 13 at 2, 1984 WL 46573 (emphasis added). There, GAO sustained a protest where the agency engaged in discussions with only one offeror because of limitations on available funding. The agency negotiated with only one offeror and "negotiated the necessary price reduction to meet available funding limits." 1984 WL 46573 at *1. GAO explained that "as a general rule, it is improper for an agency, after receipt of BAFOs, to reopen negotiations (even if they are characterized as only 'touch-up' negotiations) with only one offeror where other offerors remain within the competitive range because every offeror within the competitive range has the right to change of [sic, or] modify its proposal, including price, for any reason whatever, as long as negotiations remain open." *Id.* (citing University of New Orleans, 56 Comp. Gen. 958 (1977), 77-2 CPD. ¶ 201). Accordingly, GAO explained, even if there is just "one offeror" in "the competitive range," an agency's "contracting officer must amend the RFP and seek new offers" when, "during final discussions it becomes obvious that the contract requirements being negotiated with the sole remaining offeror differ significantly from the requirements stated in the RFP." *Id.* (citations omitted). GAO explained that if the agency gave the protester "an opportunity to negotiate a price reduction, [the protester] could have substantially reduced the difference between the two offers," and required the agency to reopen negotiations, stating its requirements clearly. *Id.*³ see Symetrics Industries, Inc., B- 274246 et al., 97-2 CPD ¶ 59, 1997

³ On a motion for reconsideration by the agency, there, GAO modified its recommendation that

WL 529581 (sustaining protest argument that the agency there was required to amend the solicitation upon receiving information that **funds were unavailable** for the purchase of a significant portion of an estimated quantity included in the request for proposals for an indefinite quantity/indefinite delivery order contract).

The Agency's action here, mirrors that in Joint Action. In Joint Action, the substantial change in requirements was the level of available funding and the restructuring of the awardee's proposal to come within the level of available funding. GAO accordingly sustained the protest and recommended that the agency "reopen negotiations with both [offerors] with a clear statement of its minimum requirements. Here, the Agency lacked sufficient funding to make even a single award, and in improper actions benefitting solely SpaceX, allowed a relaxation of mandatory specification requirements for SpaceX concerning Flight Readiness Reviews and other reviews."⁴ The Agency's Solicitation changes for only SpaceX brings this protest squarely within the Joint Action decision.

Through discussions only with SpaceX, the Agency changed its FRR requirements by allowing less costly performance by SpaceX relating to the FRRs, saving SpaceX (and NASA) hundreds of millions of dollars – plainly a material change in requirements. Additionally, the Agency notified only SpaceX of its change in estimated funding and permitted only SpaceX to revise its price proposal to fit within the Agency's revised budget estimates. The Agency's decisions to not notify all offerors and to not amend its Solicitation were arbitrary and

the agency take corrective action of reopening negotiations, since less than 3 months' performance remained on the contract and the contracting agency decided not to exercise a contract option and to issue a new solicitation instead. GAO otherwise affirmed its prior decision.

⁴ As pointed out above and earlier, relaxation of the mandatory Flight Readiness Reviews for SpaceX potentially saved SpaceX [REDACTED] of dollars (approximately [REDACTED]) – a sum that the Agency did not have funding to pay.

unreasonable, and violated Federal procurement regulations. Had the Agency amended the Solicitation and made all offerors aware of its funding limitations, Blue Origin would have reduced its proposed price to meet NASA's funding concerns, and reduced the difference between the two offers. That is confirmed in the Declarations of Robert H. Smith, Ex. 1 at ¶¶ 24, 26 and Brent Sherwood, Ex. 2, ¶¶ 12, 13.

The Agency changed these requirements as discussed above only for SpaceX, which had the effect of narrowing NASA's budget shortfall, without notifying all offerors or amending the Solicitation to advise all offerors of the funding limitations and other changes. The Agency's actions in changing these requirements just for SpaceX without notice to other offerors were arbitrary and violated federal procurement regulations, and Blue Origin was prejudiced as a result of NASA's actions. *See, infra*, Section IV(G).

F. NASA Breached the Implied-In-Fact Contract of Good Faith and Fair Dealing.

One of the guiding foundation principles of the Federal Acquisition Regulation System is the Government must "[c]onduct business with integrity, fairness, and openness." FAR 1.102-2(c)(3) mandates that "[a]ll contractors and prospective contractors shall be treated fairly and impartially" FAR 1.602-2 states "Contracting officers shall . . . [e]nsure that contractors receive impartial, fair, and equitable treatment." As a result, an Agency's failure to evaluate an offeror's proposal fairly and honestly constitutes a breach of its "implied-in-fact contract to fairly and honestly consider an offeror's proposal in the procurement context." *Safeguard Base Operations, LLC v. U.S.*, 989 F.3d 1326, 1332 (Fed. Cir. 2021).

NASA did not treat the offerors impartially, fairly, or equitably. During the evaluation process, NASA determined that it did not have enough money for multiple awards, and decided shortly thereafter to award just one contract – the contract that appeared to offer the lowest price,

even though it was unawardable. See, e.g., §§ III.D.2, 3, *supra*. NASA wrote that SpaceX's proposal was not compliant on safety-related Solicitation requirements, then swept those requirements under the proverbial rug to select SpaceX for award, creating zero records to provide support for why it ignored its evaluations that SpaceX's proposal ignored crucial requirements. See, e.g., § IV.D.3, *supra*. During the same process, NASA reviewed Blue Origin's proposal significantly more harshly than it did SpaceX's proposal for the exact same purported issues. See § IV.D.4, *supra* (noting that NASA gave Blue Origin a "significant weakness" but SpaceX a weakness for the same purported issue with communication systems). After NASA's chief engineer Ralph Roe sent a whistleblowing email to his bosses that SpaceX's proposal "increases [NASA's] risk significantly" and that SpaceX will not "overcome these technical challenges . . . on the schedule they suggest," NASA refused to provide a written response and went ahead with its favored contractor. See § III.F, *supra*. Then NASA had discussions with just SpaceX, so that SpaceX could change its technical proposal and its pricing, and refused to have any discussions with other offerors. See § IV.C, *supra*.

When taken together, these arbitrary and unlawful decisions show that NASA's award decision lacked a rational basis and thus was prejudicial to Blue Origin. See *USfalcon, Inc. v. U.S.*, 92 Fed. Cl. 436, 450 (2010) (finding that multiple agency procurement errors might cumulatively establish prejudice). Indeed, when an agency "repeatedly overlooked deficiencies in [an awardee's] proposals, relaxed Solicitation requirements, and amended its Technical [and Management] Evaluations in favor of [the awardee]," the award is "arbitrary and capricious." 2M Research Services, LLC, 139 Fed. Cl. at 479, 480. The same result should obtain here.

G. Blue Origin Was Prejudiced By NASA's Procurement Errors.

NASA erred in its selection of SpaceX for the Option A BAA award, which was arbitrary, capricious, and not in accordance with law or regulation. In addition to establishing NASA's

significant errors in the procurement process, Blue Origin was prejudiced by these errors. See Kiewit Infrastructure West Co., 147 Fed. Cl. at 707 (to prevail in a bid protest, “the protester must show first a significant error in the procurement process, and second, that the error prejudiced it.”).

When an “irrational or arbitrary and capricious agency action has occurred, prejudice is presumed.” Caddell Constr. Co. v. U.S., 125 Fed. Cl. 30, 50 (2016). Alternatively, when the protester alleges that the procuring agency violated a law or regulation, it must establish “a clear and prejudicial violation of the applicable statutes or regulations” such that the protester had a “substantial chance” of receiving the award but for that error. Kiewit Infrastructure West Co., 147 Fed. Cl. at 707. (quoting Banknote Corp of Am. v. U.S., 365 F.3d 1345, 1351 (Fed. Cir. 2004)). Importantly, “[i]n order to show it was significantly prejudiced, plaintiff does not have to show that, but for the error, plaintiff would have been awarded the contract.” Heritage of Am., LLC v. U.S., 77 Fed. Cl. 66 at 71 (2007) (citing Data Gen. Corp. v. Johnson, 78 F.3d 1556, 1562 (Fed. Cir. 1996)).

Because NASA’s procurement process and decision were arbitrary and capricious, this Court should presume prejudice on the part of Blue Origin. That presumption is fully justified on the facts here. However, should this Court find that prejudice is not presumed, the Administrative Record demonstrates NASA’s clear and prejudicial errors in its Option A procurement, such that Blue Origin would have had a substantial chance of receiving the award but for those errors. See generally Smith Decl., Ex. 1; Sherwood Decl., Ex. 2. Blue Origin, unlike SpaceX submitted a compliant proposal that was next highly rated, and next lowest in cost. With the elimination of SpaceX’s noncompliant proposal, Blue Origin was next line for award.

1. Prejudice To Blue Origin Should Be Presumed Because NASA's Decision Was Arbitrary And Capricious In Violation Of The APA.

NASA's decision to award the Option A Solicitation to SpaceX was arbitrary, capricious, and contrary to law and, therefore, prejudice is presumed.

As discussed in more detail above, NASA arbitrarily and capriciously waived or relaxed numerous critical milestone review requirements for only SpaceX, overlooked SpaceX's failure to include the critical safety reviews when it elected to enter into initial, nonbinding negotiations with only SpaceX, and evaluated SpaceX's management and technical proposals unfairly and inconsistently with the Solicitation's requirements. For example, NASA originally found SpaceX's proposal was "incomplete," not compliant with the Statement of Work, and did not satisfy any of its interpretations of the Solicitation's FRR requirement. However, in justifying its selection of SpaceX for initial, nonbinding post-selection negotiations, NASA's findings go (1) from originally finding SpaceX's proposal not consistent with the agency's interpretation of the FRR requirement, to finding it only "arguably not consistent with" the Solicitation's FRR requirements; and (2) from originally finding SpaceX's proposal "incomplete" and not consistent with the statement of work, to it "contains no deficiencies or similar errors and is therefore awardable without needing to engage in discussions in order to solicit for a revised proposal." There is an analytical gap in NASA's selection logic, reasoning and interpretation for which the contemporaneously created record does not provide the necessary foundational support. Thus, this is just one of the many instances discussed above where the Agency's decision was arbitrary, capricious and unlawful.

As a whole, NASA actions display an unfair and arbitrary pattern of favoritism toward SpaceX throughout the evaluation process by arbitrarily waiving multiple critical safety reviews and requirements, arbitrarily ignoring negative aspects of SpaceX's proposal, and arbitrary issuing

evaluation ratings contrary to the Solicitation. To overcome this analytical gap, the Court support would need to take a Kierkegaardian leap of faith, which renders NASA's decision arbitrary, capricious and unlawful. Therefore, prejudice to Blue Origin should be presumed. See Caddell Constr. Co., 125 Fed. Cl. at 50.

2. NASA Made Clear And Prejudicial Errors Such That Blue Origin Would Have Had A Substantial Chance Of Receiving Award But For Those Errors.

(a) Blue Origin Was Next In Line For Award.

Additionally, the Administrative Record shows that Blue Origin had a substantial chance of winning the Option A award absent NASA's errors. Blue Origin was next in line to SpaceX for the award. If NASA had not erred in its evaluations and had rejected SpaceX's proposal as unawardable for its failure to comply with the Solicitation's FRR, DCR and other critical review requirements; had not engaged in improper communications with SpaceX, or had properly amended the Solicitation when the requirements changed; Blue Origin would have received the Option A award.

(b) Had Blue Origin Been on Equal Footing with SpaceX, It Would Have Proposed A Fundamentally Different Approach.

NASA's election to erroneously waive or relax the Solicitation's material FRR requirement, the DCR requirement, and at least six other critical safety reviews only for SpaceX so significantly and materially alters the Solicitation's requirements that it cannot fairly be considered the same solicitation.

If Blue Origin had also known that these critical requirements and reviews were being waived, ignored, or even relaxed, Blue Origin would have proposed a fundamentally different technical approach and [REDACTED] it originally proposed in the base period proposal. Smith Decl., Ex. 1, ¶¶ 12-14, 16; Sherwood Decl., Ex. 2, ¶ 8. That revised

approach would have provided Blue Origin with a lower cost yet improved proposal, providing a substantial chance for award under any such properly revised Solicitation. Blue Origin was forced to change its proposed architecture as direct result of the Solicitation's unambiguous and specific timing required for the critical milestone requirements, including the FRRs, DCR, and other reviews. Smith Decl., Ex. 1, ¶ 13-14. This revised approach would have given Blue Origin a substantial chance of award because it would have improved Blue Origin's evaluation, decreasing its weaknesses and increasing strengths. Id., ¶ 17. Notably, this approach would have significantly lowered Blue Origin's proposed price through a more [REDACTED] solution, which would have resulted in a significant reduction in cost and additional corporate contribution. Id., ¶ 18-20, 24; Sherwood Decl., Ex. 2, ¶ 12. Moreover, had NASA engaged in discussions with Blue Origin on its proposal, as it did with SpaceX, Blue Origin would have justified, enhanced, or even revised those aspects of its technical and management proposal rated a weakness or significant weakness. See Smith Decl., Ex. 1, ¶ 22; Sherwood Decl., Ex. 2, ¶ 14. Additionally, Blue Origin's owner would have been, and is, willing to absorb over \$3 billion in Blue Origin's private contribution to address any NASA budgetary or funding shortcomings. Smith Decl., Ex. 1, ¶ 24.

To start, if Blue Origin had been afforded the same opportunity to respond to NASA's waived, ignored, or relaxed critical milestone requirements and reviews, Blue Origin would have proposed an entirely different technical approach that [REDACTED] [REDACTED] [REDACTED] architecture. Id., ¶¶ 12-13. The [REDACTED] would result in significant changes to Blue Origin's HLS system design, which would have resulted in higher performance margins; increased technical capability, including [REDACTED]; and a significant cost reduction. Id., ¶¶ 12-20.

The [REDACTED] would have [REDACTED] [REDACTED]. Id., ¶ 18. As a result of being [REDACTED], Blue Origin's [REDACTED] would have increased, which would have significantly lowered the proposed price and significantly increased Blue Origin corporate contribution. Id. Furthermore, had Blue Origin known NASA would discount launch architecture risks (such as waiving or relaxing critical reviews as here), Blue Origin's technical and management risk would have decreased by the [REDACTED]. See id., ¶ 17 (listing specific examples); Sherwood Decl., Ex. 2, ¶ 8 (same).

As NASA (including the SSA on the HLS Option A Solicitation) is aware, even before Blue Origin knew NASA waived and relaxed the FRR requirement for only SpaceX, Blue Origin's founder offered to provide \$2 billion dollars in corporate contribution to assist NASA with its budgeting difficulties. AR Tab 97a at 63452. However, Blue Origin's offer of additional private contribution did not stop at \$2 billion. Blue Origin's offered to absorb over \$3 billion as a private contribution. Smith Decl., Ex. 1, ¶ 24.

How can Blue Origin be so certain, and this Court believe, that Blue Origin would have originally taken this [REDACTED] approach if it had known that NASA was waiving or relaxing its FRR, DCR and other critical reviews? Blue Origin is certain because it was the approach it originally put forward in the HLS Base Period. Id., ¶¶ 12-13; Sherwood Decl., Ex. 2, ¶ 8. Blue Origin altered its approach because it designed and proposed an approach that complied with the Solicitation, including the unambiguous, time-specific FRR requirement, DCR requirement and other critical reviews as drafted. See Smith Decl., Ex. 1, ¶ 12-13.

Alternatively, if Blue Origin had been afforded the same opportunity as SpaceX to enter negotiations with NASA on its proposal, Blue Origin would have justified, enhanced, or even

revised those aspects of its technical and management proposal rated as having a weakness or significant weakness. Sherwood Decl., Ex. 2, ¶ 15 (providing examples); see also Id., ¶ 22 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Smith Decl., Ex. 1, ¶ 24.

H. Blue Origin is Entitled to Relief.

The Court should award declaratory and injunctive relief because NASA acted arbitrarily, capriciously, and contrary to procurement law, and Blue Origin does not have an adequate remedy at law. Pursuant to the Tucker Act, this Court is expressly empowered to “award ‘any relief that the court considers proper, including declaratory and injunctive relief.’” Kiewit Infrastructure West Co., 147 Fed. Cl. at 712; Green Tech. Group, LLC v. U.S., 147 Fed. Cl. at 245-46.

1. Declaratory Relief is Appropriate.

As discussed in detail above, a declaratory judgment is appropriate. “Congress authorized the United States Court of Federal Claims, in exercising bid protest authority, to ‘award any relief that the court considers proper,’ including declaratory relief.” Favor TechConsulting, LLC v. U.S., 129 Fed. Cl. 208, 217 (2016) (quoting 28 U.S.C. § 1491(b)(2)). “Declaratory relief has long been established as available in bid protest matters.” Chapman L. Firm Co. v. U.S., 65 Fed. Cl. 422, 424 (2005) (citing Ulstein Maritime, Ltd. v. U.S., 833 F.2d 1052, 1055 (1st Cir. 1987)).

The record reflects that NASA acted arbitrarily, capriciously, and in contravention of law or regulation. That is evidenced by NASA (1) waiving or relaxing material requirement’s and reviews the Solicitation for SpaceX – and only SpaceX, (2) engaging in improper discussions with SpaceX, (3) evaluating SpaceX’s proposal unfairly and in contravention of the Solicitation’s

[REDACTED]

requirements, (4) failing to notify Blue Origin of a change in requirements and (5) breaching its implied-in fact contract by failing to honestly and fairly evaluate the proposals in the procurement process. In addition to declaratory judgment, a permanent injunction is also warranted.

2. Blue Origin Has Succeeded on the Merits and The Remaining Injunctive Relief Factors All Favor Blue Origin so that Injunctive Relief is Appropriate.

Blue Origin has succeeded on the merits, and the remaining permanent injunction factors warrant injunctive relief. Accordingly, Blue Origin respectfully asks the Court to grant Blue Origin the immediate injunctive relief necessary to prevent and avoid the irreparable harm that NASA's award to SpaceX will and is inevitably causing.

(a) *Blue Origin Will Suffer Irreparable Harm If Injunctive Relief Is Denied.*

Absent injunctive relief, Blue Origin will suffer both non-monetary and monetary irreparable harm. As this Court has found, “irreparable harm exists when an offeror has lost the opportunity to compete fairly for a contract” and “los[t] the opportunity to compete on a level playing field with other bidders.” Kiewit Infrastructure West Co. v. U.S., 147 Fed. Cl. at 712 (citing HP Enter. Servs., LLC v. US, 104 Fed. Cl. 230, 245 (2012)); Cardinal Maint. Serv., Inc. v. United States, 63 Fed. Cl. 98, 110 (2004). Such circumstances are present here. As shown above, Blue Origin did not have the opportunity to compete fairly or on a level playing field, seeing that NASA waived or relaxed critical Solicitation requirements for only SpaceX, had improper discussions with only SpaceX, evaluated SpaceX's proposal contrary to the Solicitation requirements, and failed to issue the requisite change in requirements to offerors when it received a change in funding yielding its arbitrary selection of SpaceX's awardable proposal. Under the law, Blue Origin was not afford the opportunity to compete on a level playing field and, therefore, was irreparably harmed.

Additionally, absent an injunction, Blue Origin is harmed by the lost opportunity to work with NASA. “[T]here can be no dispute that a lost opportunity to compete for a contract forecloses a contractor’s ability to gain the experience associated with performing the contract, which has value when competing in future procurements.” Bluewater Mgmt. Grp., LLC v. United States, 150 Fed. Cl. 588, 619 (2020)).

Here, Blue Origin lost that opportunity to work with NASA and to gain valuable insights that cannot be remedied by other work for NASA outside the full design, development, test, and evaluation of a lunar lander. See Sherwood Decl., Ex. 2, ¶ 15. The harm that flows out from NASA’s improper selection of SpaceX for the lunar lander transportation business is unique and particularly harmful to Blue Origin and its ability to compete in future procurements in this area. Id., ¶¶ 15-16. The valuable insights and experience Blue Origin would gain in performing and designing the lunar architecture for NASA cannot be replicated or meaningfully gleaned after the fact. Id. If SpaceX remains the sole provider receiving a \$3 billion investment from NASA, NASA will build its entire lunar architecture around SpaceX’s Starship. Id., ¶ 16. SpaceX’s Starship is a closed architecture, vertically integrated system, meaning it is not compatible with any other provider’s system. Id. By definition, the selection of SpaceX’s unawardable proposal creates an un-level competitive landscape and effectively gives SpaceX a lunar system monopoly. SpaceX’s design itself precludes future competition. Therefore, absent an injunction, Blue Origin will not only have lost the opportunity to gain valuable insights from NASA in performing the contract, the very lunar architecture implemented will preclude Blue Origin from competing in future lunar transportation lander procurements.

Moreover, Blue Origin will be further irreparably harmed due to the dismantling of the National Team partners (Lockheed Martin, Northrop Grumman, and Draper). See Sherwood Decl.,

Ex. 2, ¶ 7, 15. Absent an injunction, Blue Origin's National Team partners will move on to new opportunities elsewhere. Id. This forecloses the benefit to Blue Origin and the other members of competing together in this area as a uniquely qualified, experienced, and knowledgeable team. Id. The Blue Origin National Team submitted a proposal for a compliant, sustainable and safe system that would support NASA's goal of landing humans on the Moon by 2024. See Smith Decl., Ex. 1, ¶ 3. The selection of the non-compliant, unawardable SpaceX proposal in place of the highly qualified Blue Origin National Team's compliant proposal significantly diminishes the value of these efforts and discourages compliant and sophisticated joint submissions in the future.

Furthermore, Blue Origin will also be irreparably harmed by the continued loss of key, highly qualified employees that are necessary to sustain Blue Origin as a competitor in this field. See HP Enter. Servs., LLC v. US, 104 Fed. Cl. 230, 245 (2012). Blue Origin already is being harmed, losing crucial employees to SpaceX after NASA's selection of SpaceX. See Sherwood Decl., Ex. 2, ¶ 15. Blue Origin hired employees specifically for the HLS program. Id. This is rocket science, not sales. The employees Blue Origin hired specifically for the HLS program are highly qualified engineers and scientists with extensive and specialized knowledge of Blue Origin's HLS proposal and architectural design. See id. These are not just employees, they are critical and unique assets to Blue Origin and to Blue Origin's proposed and separately designed architecture. In short, these employees are necessary for Blue Origin to successfully compete for future NASA work. See id. Absent an injunction, the irreparable harm to Blue Origin's civil, national security, and commercial business will continue as key employees necessary for Blue Origin to compete in the future leave for competitors, including SpaceX. See generally id.

Moreover, should injunctive relief be denied, Blue Origin will have been deprived of the opportunity to compete in a fair competitive bidding process and to secure the resulting profit from

the contract that Blue Origin would have received but for the Agency's improper rejection of its proposal. See, e.g., 2M Research Servs. v. US, 139 Fed. Cl. 471, 480 (2018) (citing AshBritt, Inc. v. US, 87 Fed. Cl. 344, 378 (2009)). As this Court has found, "when procurement decisions contrary to law deprive an offeror of the opportunity to compete for a contract, the resulting lost profits are sufficient to constitute irreparable injury." Kiewit Infrastructure West Co., 147 Fed. Cl. at 712 (citing MORI Assocs., Inc. v. U.S., 102 Fed. Cl. 503, 552 (2011)); see also 2M Research Servs., 139 Fed. Cl. at 480 ("Such loss of profit stemming from a lost opportunity to compete on a level playing field has been found sufficient to constitute irreparable harm."). If a party "cannot perform [the contract], then it will not have any remedy at law to recover the contract rights, benefits, and revenue accruing to [the awardee]," and it will suffer irreparable injury. See FCN, Inc., 115 Fed. Cl. at 384-85; Heritage of Am., LLC v. U.S., 77 Fed. Cl. 66, 78 (2007).

Blue Origin is losing such revenues as a result of NASA's conduct. See Sherwood Decl., Ex. 2, ¶ 15.

Moreover, there is irreparable harm to Blue Origin because there is no replacement for this contract. See L-3 Commc'n EOTech, Inc., 83 Fed. Cl. at 660 (finding irreparable harm where the offeror's "loss of the opportunity to compete for this sizable contract cannot be remedied other than by means of injunctive relief"). Here, competitor SpaceX will receive an investment of \$3 billion to build a closed architecture system that closes off future competition. See Sherwood Decl., Ex. 2 ¶ 16.

Blue Origin lacks an adequate remedy at law as "an action at law would allow plaintiff to recoup only bid preparation costs." Isratex, Inc. v. U.S., 25 Cl. Ct. 223,231 (1992). In the absence of a permanent injunction, Blue Origin will experience irreparable non-monetary and monetary harm.

(b) *The Balance of Hardships Favors Granting Injunctive Relief to Blue Origin.*

The balance of hardships also weighs in Blue Origin’s favor. “This court tends to weigh the balance of hardships factor in favor of the protestor who has succeeded on the merits, unless specific facts counsel otherwise.” CliniComp Int’l, Inc. v. U.S., 117 Fed. Cl. 722, 747 (2014). No such specific facts exist or counsel against the hardship favoring Blue Origin.

The hardships that Blue Origin would face absent injunctive relief are significant and irreversible. On a fundamental level, Blue Origin has been denied its most basic right to a fair and “meaningful opportunity” to compete on a level playing field because of NASA’s own waiver and improper actions. Hunt Building Co., Ltd. v. U.S., 61 Fed. Cl. 243, 280 (2004). Furthermore, as discussed above, key HLS program employees have and will continue to depart Blue Origin absent injunctive relief and, such attrition, will likely preclude any realistic opportunity Blue Origin has to compete in future NASA solicitations on the HLS lander. Furthermore, as noted above, Blue Origin’s National Team will likely dissolve, foreclosing the benefit to Blue Origin and the other members of competing together in this area as a uniquely qualified, experienced, and knowledgeable team. For this matter, there is no appropriate or available substitute remedy outside injunctive relief.

By contrast, the hardship upon NASA is minimal to non-existent in comparison to Blue Origin’s hardship. First, any argument that a delay in performance of the Solicitation would burden NASA carries little to no weight. As this Court has held, asking the government to conduct the procurement as it was supposed to “is not a hardship, but an obligation.” Green Tech. Group, LLC, 147 Fed. Cl. at 246. Furthermore, any argument by NASA regarding a delay in sending astronauts to the moon by 2024 is also a minimal hardship when considering the facts of this case. If NASA was trying to get to the moon by 2024, it would not have selected SpaceX, as the email

sent by NASA Chief Engineer, Ralph Roe, confirms. See AR Tab 67 at 62900 (stating that SpaceX would not be able to resolve its technical difficulties “on the schedule they suggest”). Furthermore, NASA’s schedule for various parts of the Artemis program has been delayed for reasons independent of the HLS Option A contract award. See, e.g., AR Tab 108b51 at 104544-45. At the end of the day, there is no excuse or replacement for conducting the procurement process in a fair, open and honest way, which did not happen here. Any hardship the agency faces results from its own actions.

Furthermore, as for Defendant-Intervenors, it submitted a proposal that was not compliant with the Solicitation and, therefore, was unawardable in the first place. As such, any argument by Defendant-Intervenor’s that it would be a hardship to require it to re-compete on a level-playing field with adherence to the rules cannot be as severe a hardship as Blue Origin’s denial of an opportunity to a fair and honest competition. See Hunt Building Co., Ltd. v. U.S., 61 Fed. Cl. 243, 280 (2004) (“Similarly, [the awardee] will be harmed by having to undergo a recompetition—but not as severely as [the other offeror denied the right to compete fairly] would be, if the unfair selection were allowed to stand.”). Furthermore, SpaceX is moving forward with the development of its Starship with or without NASA’s funding, so a delay in receipt of funds from NASA will not prevent it from continuing performance on its own. See SpaceX - Starship.

Accordingly, the balance of hardships tilts heavily in the plaintiff’s favor.

(c) Injunctive Relief is in the Public Interest.

The public interest is also best served by enjoining the award to SpaceX because such relief promotes fair and open competition that maintains a level playing field for all offerors. Hunt Bldg. Co. Ltd. v. US, 61 Fed. Cl. 243, 280 (2004) (“[E]nsuring that the Government procurement process is fair” serves the public interest); 2M Research Servs., 139 Fed. Cl. at 480-481 (finding “[i]t is axiomatic that the public has an interest in honest, open, and fair

competition in the procurement process”). “There is no dispute that ‘[t]here is an overriding public interest in preserving the integrity of the procurement process by requiring the Government to follow its procurement regulations.’” Bluewater Mgmt. Grp., 150 Fed. Cl. at 619 (quoting Bona Fide Conglomerate, Inc. v. U.S., 96 Fed. Cl. 233, 242 (2010)).

As shown above, since NASA’s decision rests on evaluations that “did not comport with the FAR” or do not have a rational basis, injunctive relief is proper. See, e.g., Green Technology Group, LLC, 147 Fed. Cl. at 246 (ordering a permanent injunction where “[t]he Agency’s award decision rested on a Price evaluation that did not comport with the FAR.”); L-3 Communications EOTech, Inc. v. U.S., 83 Fed. Cl. 643, 661 (2008) (lacks a rational basis). Furthermore, whereas here, the agency “abandoned or waived specific technical requirements set forth in the Solicitation” the court has found injunction serves the public interest because the agency “did not consider the bids ‘fairly.’” Naplesyacht.com, Inc. v. U.S., 60 Fed. Cl. 459, 477 (2004). Last, the Court of Federal Claims has held that an injunction would serve the public interest here because NASA’s award decision “relied on a criterion not communicated to other offerors.” HP Enter. Servs., LLC v. US, 104 Fed. Cl. 230, 246 (2012).

As a result, allowing NASA’s award decision to stand would “‘destroy the public trust in government contracting and deprive the government of the benefits of full and open competition.’” Green Technology Group, LLC, 147 Fed. Cl. at 246 (quoting HP Enter. Servs., 104 Fed. Cl. at 246); CliniComp Int’l, Inc. v. US, 117 Fed. Cl. 722, 747 (2014).

V. CONCLUSION

For all of the reasons stated above, Blue Origin respectfully requests that this Court grant its request for a declaratory judgment that NASA’s award of Option A was unlawful and improper, and issue a permanent injunction enjoining NASA from permitting continued performance of the illegally and improperly awarded contract option for the HLS Option A effort.

Dated: October 1, 2021

Respectfully submitted,



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APPENDIX

EXHIBIT 1

A-1

**IN THE UNITED STATES COURT OF FEDERAL CLAIMS
BID PROTEST**

BLUE ORIGIN FEDERATION, LLC,)	
)	
Plaintiff,)	
v.)	
)	
THE UNITED STATES,)	No. 21-1695C
)	Judge Richard A. Hertling
Defendant,)	
and)	<div style="background-color: black; width: 100px; height: 1.2em; display: inline-block;"></div>
)	
SPACE EXPLORATION TECHNOLOGIES, CORP.,)	
)	
Defendant-Intervenor.)	

DECLARATION OF ROBERT H. SMITH PURSUANT TO 28 U.S.C. § 1746

I, Robert H. Smith, am over 18 years old, and do hereby declare and state as follows:

1. I am CEO of Blue Origin Federation, LLC (Blue Origin), and have worked for Blue Origin or affiliated entities for four years. I have worked in the aerospace industry for over 35 years and hold a PhD in aerospace engineering. I am a Fellow in the Royal Aeronautical Society and a Fellow of the American Institute of Aeronautics and Astronautics. I have worked as a Systems Director for the Aerospace Corporation, an Executive Director for United Space Alliance, as the Vice President and Chief Technology Officer for Honeywell Aerospace and as the President of Mechanical Systems & Components for Honeywell Aerospace prior to joining Blue Origin. In connection with NASA's Human Landing System (HLS) contract, I am the final approval authority for Blue Origin's strategy and offer to NASA.

2. I have personal knowledge of the matters stated herein, and could and would competently testify thereto if called upon as a witness.

3. Blue Origin is deeply committed to NASA's mission of creating a new HLS system for landing American astronauts on the Moon. Our recent and prior actions have demonstrated that commitment. Our team executed well on our Base Period award and received the largest award of all the HLS bidders at \$579M. Blue Origin invested a substantial amount of company funds towards our HLS offering, formed and managed an outstanding team representing some of the best in the industry, and submitted an HLS Option A proposal for a compliant, sustainable and safe system that would support NASA's goal of landing humans on the Moon by 2024.

4. As discussed below, in August of 2021, we learned through the Government Accountability Office's (GAO's) public filings that NASA accepted a proposal from SpaceX and made an award to them that did not comply with the Solicitation. As GAO reported, NASA chose to relax or waive the requirements for Flight Readiness Reviews (FRRs) that the Solicitation required.

A. Blue Origin Learned About NASA's Decision Regarding Vital Safety & Mission Assurance Reviews Only From Recently Available Materials.

5. The GAO issued its redacted decision on Blue Origin's protest of NASA's award of the HLS Option A contract to SpaceX on August 10, 2021. That decision informed Blue Origin for the first time, that NASA, as part of its award process, waived material Solicitation requirements for SpaceX related to mandatory Flight Readiness Reviews and made an award to SpaceX, even though SpaceX had not proposed enough FRRs to comply with what the Solicitation required. Blue Origin learned that SpaceX proposed to conduct only one FRR for its entire program and proposed to conduct at least fifteen additional launches without a Solicitation-compliant Flight Readiness Review for each additional launch. In other words, SpaceX's proposal failed to include fifteen critical safety reviews – Flight Readiness Reviews – thereby generating

significant cost savings and schedule acceleration as opposed to what it would have incurred to conduct the fifteen additional required FRRs.

6. A redacted version of the Complaint filed with the Court of Federal Claims in this matter was released on September 22, 2021. This publicly-available Complaint further indicates that NASA changed its requirements for or otherwise reduced the number of FRRs, and waived the requirements related to the Design Certification Review (DCR) and other Solicitation required reviews.

7. In addition to the FRRs, the redacted Complaint notes five additional critical milestone reviews, the Critical Design Review, DCR, Post Mission Assessment Review (PMAR), Sustaining System Requirements Review (SRR), and Sustaining Continuation Review. The Solicitation was clear on what these reviews included and specified mandatory explicit timing in many cases of when they were supposed to occur. For example:

#	Review Requirement	HLS Option A Solicitation Requirement Language
1	Flight Readiness Review (FRRs) (5.4.4)	<p>“The FRR should be completed by two (2) weeks before launch of each HLS element.” (Solicitation, Attachment G at 31).</p> <p>“An FRR is required prior to each launch of an HLS element. Propose multiple FRRs as required.” (Solicitation, Attachment O).</p> <p>Completion Due Date - Relative: “2 weeks before first launch of an HLS element (L-2 weeks).” (Solicitation, Attachment O).</p>
2	Design Certification Review (DCR) (5.4.2)	<p>Completion Due Date - Relative: “9 months before first HLS element launch (L-9 months)” (Solicitation, Attachment O).</p> <p>“Objective: The DCR ensures that the qualification and verifications demonstrate design compliance with the functional and performance requirements and human spaceflight certification. This milestone should be completed at first HLS launch – 9 Months (L9).” (Solicitation, Attachment G at 28)</p>

8. It must be emphasized that these reviews are not merely payment milestones or just meetings, but are clearly defined pieces of work scope found in the HLS Statement of Work and

are fundamental to NASA's mission assurance approach. If attention is paid specifically to the DCR as just one example, this point becomes clear. The Statement of Work provided to Blue Origin as part of the Solicitation package for its December 2020 proposal to NASA included a specific section (5.4.2) on the DCR and also mentioned DCRs in Section 7.1 that dealt with System Safety. That latter Section states:

"At the Design Certification Review (DCR) safety review meeting, the contractor shall present the final design and operations scenario; all identified hazards, hazard causes, and critical items; the means for eliminating, reducing, or controlling the risk has been defined and implemented; verifications have been completed or a closure plan, utilizing a Safety Verification Tracking Log (SVTL), including estimated closure date (ECD) and constrained operations, are concurred with by the SERP."

9. A DCR, like an FRR, is a form of Safety and Mission Assurance review that is conducted by and with the NASA customer and this review is very detailed and structured in its documentation and content. There is not precedent for eliminating these reviews or holding them without NASA. To put it differently, an option to make major modifications to these reviews or eliminate them altogether was not available to all competitors. Furthermore, these reviews are designed and have been shown to be vital to catching safety issues that may cascade into failures as well as ensuring that any issues that are discovered do not impact the performance or overall timing of the mission. Changes to these reviews in the manner exposed in recently available redacted documents indicate a level of tolerance to launch and system failures that is not consistent with the Solicitation or NASA's long and successful focus on safety and mission assurance.

B. Blue Origin Designed Its HLS Offer To Be Compliant With The Solicitation's Requirements For Required Reviews and Specific Schedule Completion Dates.

10. Blue Origin was prejudiced by NASA's waiver and abandonment of important Solicitation requirements that are foundational to flight certification and safety because Blue Origin's proposal was compliant for all FRRs, DCRs, and other Review requirements, and included the cost and schedule impacts required for the necessary precursor work. Blue Origin chose a technical solution, and proposed a program plan and price, that reflected all of NASA's requirements for these critical reviews.

11. If Blue Origin knew that NASA had changed or lessened its requirements for FRRs, DCRs, and potentially other requirements that reflected a preference towards "immense complexity and heightened risk" solutions (which is a phrase used by the Source Selection Authority in her Source Selection Statement to describe SpaceX's proposal), then Blue Origin would have proposed a significantly different technical solution. Blue Origin's proposed technical solution was developed with the intent to fly on a variety of launch vehicles and provide redundancy so the mission would not be disrupted by the failure of any one launch system. Our proposal and approach focused on safe and low-risk launch systems that were compliant to NASA's Solicitation and stated risk posture. Similarly, to meet NASA's mandatory safety and risk expectations, including the FRR and other review requirements as specified in the Solicitation, Blue Origin included National Team members (Lockheed Martin, Northrop Grumman, and Draper) with proven and previously-accepted solutions. This approach was expressly chosen and developed to meet NASA's stated and repeatedly reinforced goal of a 2024 Moon landing in a safe way with a high-confidence solution. The National Team included Lockheed Martin to utilize its systems from a deep space capsule that NASA had previously procured and approved, and likewise, included Northrop Grumman to take advantage of its orbit transfer capability that had

also been previously procured and approved and was in use by NASA. Furthermore, in order to satisfy the material requirements and reviews on time, Blue Origin accelerated its Preliminary Design Review into the Base Period. This responsible and compliant approach that emphasized safe and mature systems resulted in increased cost impacts when compared to higher risk solutions.

C. Blue Origin Would Have Proposed An Alternative HLS Design Had It Known NASA Intended to Waive Key Solicitation Requirements, Thereby Ignoring Certification and Launch Risks and Substantially Relaxing Schedule Constraints.

12. Blue Origin had no way of knowing that NASA would radically depart from its time-tested and documented requirements for mitigating risks and approving systems for flight missions as mandated in the Solicitation, specifically as was allowed for SpaceX – such that a single FRR would suffice for an unlimited number of launches of an entire class of new, undeveloped, and untested launch vehicles as well as relaxing, deferring, or entirely omitting other material reviews required by the Solicitation. If Blue Origin had known NASA intended to waive requirements mandated in the Solicitation, it would have proposed a solution fundamentally different in multiple ways, with a different architecture than the one set forth in its Option A proposal. Specifically, as I explain below, Blue Origin would have proposed an HLS concept designed to take full advantage of [REDACTED] [REDACTED] [REDACTED] [REDACTED] the Blue Origin proposal concept which was compatible with other, non-Blue Origin rockets (that had [REDACTED] [REDACTED] [REDACTED] [REDACTED]). This change would have resulted in major changes to our HLS system design and resulted in a significant cost reduction to Blue Origin's proposal. NASA's undisclosed departure from Solicitation requirements was prejudicial to Blue Origin.

13. As background, Blue Origin originally proposed to use the [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] in its Base Period proposal but changed this approach because the Option A

Solicitation applied material requirements (as noted in paragraph 7 above) for all HLS elements, which included supporting spacecraft and launch vehicles [REDACTED].

14. During the Base Period execution, Blue Origin made a significant update to the initial HLS technical architecture to [REDACTED] [REDACTED] [REDACTED] [REDACTED].

[REDACTED] [REDACTED] [REDACTED] Blue Origin made that change in direct response to NASA's launch vehicle and supporting spacecraft certification requirements and schedule milestones within the Option A BAA Solicitation, which specifically required three successful demonstrated launches three months prior to FRR (Solicitation Statement of Work Section 4.4.3.5.2 Launch and Delivery Operations).

15. In fact, Blue Origin's original Base Period proposal was given a weakness against this criterion (under Technical Focus 5) with the evaluation stating ". . . the offeror's proposal provides inadequate substantiation that it will achieve at least one of these requirements for its primary or backup launch vehicles." The evaluation further explained the criticality of launch vehicle certification requirements with the statement: "These launch vehicle requirements exist primarily to ensure that all HLS modules will be launched on flight proven vehicles [emphasis added] in which the Government can have confidence. Meeting these requirements substantially mitigates launch vehicle risk, particularly for newly developed launch vehicles. In the absence of sufficient support within the proposal indicating how and when these requirements will be met, the offeror's proposal presents an increased risk of mission failure." After NASA assigned a weakness to Blue Origin because of concerns over whether the [REDACTED] [REDACTED]

[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED], Blue Origin chose a technical solution that utilizes [REDACTED] that was already fully compliant with Solicitation requirements and objectives.

16. Had Blue Origin known that NASA would relax mandatory certification and review requirements on launch vehicles and supporting spacecraft, Blue Origin would have retained the [REDACTED] [REDACTED] with higher performance margins and increased technical capability, including greater mass delivery to the Moon.

17. Blue Origin's technical and management risk also would have decreased because our [REDACTED] HLS solution would have (1) eliminated a NASA-assessed weakness to Blue Origin [REDACTED] of its multi-element approach, (2) allowed Blue Origin to propose a single lander propulsion system, which would have reduced or obviated the significant weakness assessed to Blue Origin based on [REDACTED] (3) increased our proposal strengths by having even greater sustainability features in our design, (4) simplified Blue Origin's supply chain and mitigated any weaknesses received in that area, and (5) eliminated a weakness received for having design incompatibility issues between its teammates' heritage hardware and its new technical designs. In short, Blue Origin would have received higher technical and management ratings had it known that NASA would discount launch architecture and maturity risks (as evidenced by its waiving or relaxing the FRR, DCR, and other review requirements and accepting an unproven, early development launch system) by proposing a simpler lander system with a more capable, low-cost launch system.

18. These changes would have also positively impacted the price of our proposal, resulting in a significantly reduced overall Total Evaluated Price to NASA. The move to a [REDACTED] architecture would have resulted in [REDACTED] [REDACTED] [REDACTED] \$ [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] Blue Origin would have proposed its simpler lander design and [REDACTED] launches at a significantly lower proposed price

and with a larger available corporate contribution [REDACTED]

19. Further, Blue Origin had the capability and financial support to propose [REDACTED] as a corporate contribution, significantly lowering cost to NASA. An increased corporate contribution would have significantly lowered its price and positively impacted Blue Origin's evaluation scores.

20. All of these changes not only would have reduced the overall price significantly, but also would have provided tremendous flexibility in the phasing of NASA's payment schedule so that different Agency budget profiles could be supported.

D. NASA Did Not Have Pre-Award Discussions with Blue Origin.

21. NASA held pre-award discussions only with SpaceX and did not have similar discussions with Blue Origin or Dynetics. Blue Origin was prejudiced by NASA only engaging in discussions with SpaceX on its proposal.

22. Blue Origin would have justified, enhanced, or even revised those aspects of its technical and management proposal rated as having a weakness or significant weakness in the same way that SpaceX was given that opportunity when faced with their non-compliance for FRRs.

23. Blue Origin would have also addressed any budget concerns or impacts that NASA had, due to perceived Fiscal Year (FY) 2021 budget shortfalls or other budget challenges. Indeed, Blue Origin's owner is – and was – willing to make an additional \$3 billion in corporate contribution to cover budget shortfall over the next two years. NASA's unwillingness to engage in discussions with Blue Origin meant that Blue Origin was not able to make such an offer during the interval in which NASA negotiated only with SpaceX. That was highly prejudicial to Blue Origin.

24. The ability of Blue Origin to work with NASA on its price and payment timing was demonstrated during the Base Period contract. Blue Origin and the National Team reduced its price during the Base Period by 46% to accommodate NASA's budget needs for that period of performance. Blue Origin's demonstrated flexibility on the HLS Base Period contract indicates that NASA had the ability to ask and receive these types of changes, but in this case, unfairly chose to not consider or enter into any discussions in this regard. Blue Origin's offer, subsequent to NASA's single award, to absorb over \$3 billion as a Blue Origin private contribution to add valuable competition and assist in addressing NASA's HLS Option A budget and funding shortfall, again, demonstrates that flexibility and willingness. Simply put, had NASA entered into discussions with Blue Origin as it did with SpaceX, Blue Origin would have been able to adjust its technical and management offer, significantly lower its price, accommodate NASA's constraints for payment schedule, address any other proposal concerns, and simplify its solution. NASA's exclusive discussions with SpaceX to allow SpaceX to remedy its noncompliant proposal denied Blue Origin a fair opportunity to compete and was prejudicial.

E. Conclusion

25. Blue Origin chose its architecture, its launch system, and its partners because neither the Solicitation, nor NASA's statements or feedback during the Base Period, indicated that NASA would overlook its mandatory Solicitation requirements for every vehicle launch, including supporting spacecraft, and allow for an untested and high-risk launch vehicle architecture and multiple, complex operations in low Earth orbit without the NASA-specified and supervised pre-launch assessments or reviews. This unstated relaxation in requirements and the undisclosed acceptance by NASA of a higher risk tolerance, in contravention of NASA's documented definition and inclusion of all associated systems and launch vehicles as intrinsic to the proposed HLS scope, solution, and evaluation, resulted in an unfair and arbitrary competition that failed to

comply with the Solicitation's requirements. If these departures in preference and requirements had been disclosed to the National Team in any of its reviews in its months of interaction, Blue Origin would have proposed a simpler lander architecture optimized only for launch [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED], [REDACTED] [REDACTED] and substantially modified its price and payment schedule.

26. Finally, as shown by Blue Origin's previous price reduction during the HLS Base Period procurement, Blue Origin was and is ready and able to revise its offer to meet the Agency's funding limits with the knowledge that some of the Solicitation's requirements can be waived or substantially modified. However, the Agency unfairly did not enter into discussions or post-selection negotiations with Blue Origin and did not communicate these changes nor its budget limitations. Given the current knowledge of NASA's budgets for HLS, I can state definitively that Blue Origin would have fit its proposal within the Agency's estimated budget for an HLS Option A contract. Blue Origin has already provided to NASA, twice, during post-award discussions, firm offers to solve NASA's budgetary shortfalls through reductions in price and changes in payment schedules.

I declare under penalty of perjury pursuant to 28 U.S.C. § 1746 that the foregoing is true and correct to the best of my knowledge and belief.

Executed on September 28, 2021 in Kent, Washington.


Robert H. Smith

EXHIBIT 2

**IN THE UNITED STATES COURT OF FEDERAL CLAIMS
BID PROTEST**

BLUE ORIGIN FEDERATION, LLC,)	
)	
Plaintiff,)	
v.)	
)	
THE UNITED STATES,)	No. 21-1695C
)	Judge Richard A. Hertling
Defendant,)	
and)	
)	
SPACE EXPLORATION TECHNOLOGIES, CORP.,)	
)	
Defendant-Intervenor.)	

DECLARATION OF BRENT SHERWOOD PURSUANT TO 28 U.S.C. § 1746

I, Brent Sherwood, am over 18 years old, and do hereby declare and state as follows:

1. I am Sr. Vice President of Advanced Development Programs for Blue Origin Federation, LLC (Blue Origin), and have worked here for two years. In connection with NASA's Human Landing System (HLS) contract, I am the accountable executive for the business unit executing the NASA contract. As such I have personal knowledge of the matters stated herein, and could and would competently testify thereto if called upon as a witness.

2. The Government Accountability Office (GAO) issued its public decision on Blue Origin's protest of NASA's award of the HLS Option A contract to SpaceX on August 10, 2021. That decision showed, for the first time, that NASA, as part of its award process, waived material solicitation requirements for SpaceX related to mandatory Flight Readiness Reviews (FRRs) and made an award to SpaceX based on a noncompliant proposal. Flight Readiness Reviews are requirements related to ensuring safety and NASA oversight of launches of space vehicles. The Solicitation's FRR Acceptance Criteria require NASA to verify and certify prior to each flight that

the flight vehicle, launch vehicle, and support spacecraft are ready for flight. In particular, NASA must verify through FRRs for each spacecraft launch that flight operations can proceed safely with acceptable risk, and that flight environmental factors are within constraints.

3. The Flight Readiness Review is a critical decision point prior to launch. Flight Readiness Reviews are standard in the launch industry and are a formal Key Decision Point in NASA program contracts. FRRs allow NASA and the contractor team to arrive at consensus, ensuring all technical questions raised at earlier reviews have been adequately addressed, and raising and dispositioning any remaining concerns about other factors that might affect mission success for the subject launch. The GAO expressly found that the Option A BAA Statement of Work specified that the Government would have the responsibility for Certification of Flight Readiness. GAO public decision at 73 n.34.

4. FRRs are based on preparatory work flowing from prior lifecycle reviews. The work necessary to complete a FRR has a significant schedule impact and cost impact reflected in program plans. The culminating FRR event is typically held about two weeks before a scheduled launch. All technical issues that could affect the flight are studied and resolved by engineers before the meeting; their work is reviewed and discussed during the session, and the team members each express their judgment for a “go or no-go” flight decision.

5. According to GAO, SpaceX proposed to conduct only one FRR for its entire program and proposed to conduct at least fifteen additional launches without a Solicitation-compliant Flight Readiness Review for each additional launch. We affirmatively chose to not submit a proposal with a number of FRRs fewer than the number of launches, in keeping with the Solicitation, which itself was consistent with NASA practices.

6. When NASA waived the requirement in the Solicitation for a FRR for each launch, that prejudiced Blue Origin. Blue Origin was prejudiced by NASA’s arbitrary waiver and

abandonment of an important Solicitation requirement that is foundational to flight safety because Blue Origin's proposal was compliant in all respects with the FRR requirement, including the management approach of budgeting and scheduling the necessary precursor work. Blue Origin chose a technical solution, and proposed a program plan and price, that reflected NASA's requirement for a separate FRR for each launch.

7. NASA's conduct was exceptionally prejudicial to Blue Origin's proposed technical solution, which was developed to provide and reinforce diversity of launch capability and redundancy (i.e., so that Blue Origin's solution would not be disrupted by failure of any one launch system), and focused on safety and mission assurance, compliant with NASA's requirements in the Solicitation. To meet NASA's mandatory review requirements, including the FRR requirement, by the respective times specified in the Solicitation, Blue Origin included National Team members (Lockheed Martin, Northrop Grumman, and Draper) with proven and previously accepted solutions. This approach was expressly chosen and developed to meet NASA's stated and repeatedly reinforced goal of a 2024 Moon landing with a high-confidence solution, safely and with high mission assurance. Blue Origin formed the National Team to demonstrate speed to get to the Moon within well-established protocols that accounted for NASA's traditional standards, including the documented RFP requirement for pre-launch reviews. For example, the National Team incorporated Lockheed Martin to leverage a deep space capsule that NASA had approved previously, and incorporated Northrop Grumman to take advantage of orbit transfer capability that had been approved and was already in use by NASA.

8. Had Blue Origin known that NASA would radically depart from its documented and traditional requirements for approving systems for flight missions, specifically as was allowed for SpaceX, such that a single FRR would suffice for an unlimited number of launches of an entire class of new launch vehicle, Blue Origin would have proposed a solution fundamentally different

in multiple ways, with a different architecture than the one set forth in its Option A proposal. Specifically, Blue Origin would have proposed an HLS concept designed to take full advantage of [REDACTED] a concept compatible with existing rockets. Blue Origin technical and management risk would have decreased because our [REDACTED] HLS solution would have (1) eliminated NASA assessed weaknesses to Blue Origin [REDACTED] [REDACTED] of its multi-element approach (2) allowed Blue Origin to propose a single lander propulsion system, which would have obviated the significant weakness assessed to Blue Origin based on [REDACTED] [REDACTED] (3) increased our proposal strengths for having even greater sustainability in our design; (4) simplified Blue Origin's supply chain and mitigated any weaknesses received in that area; and (5) eliminated a weakness received for having design incompatibility issues between its teammates' heritage hardware and its new technical designs. In short, Blue Origin would have received higher technical and management ratings had it known that NASA would discount launch architecture and maturity risks (as evidenced by NASA relaxing for SpaceX the FRR, DCR and other review requirements and accepting an unproven, early development launch system) , by proposing a simpler lander system with a more capable, low-cost launch system.

9. Blue Origin chose to partner with other outstanding and experienced NASA contractors, because the RFP provided no indication that NASA would overlook a high-risk launch architecture and complex multi-vehicle operations in low Earth orbit. Had Blue Origin known NASA would emphasize price over safety, accepting considerably more risk than NASA has on any prior crewed mission, and would be willing to overlook launch system risk in contravention to NASA's documented definition of all associated systems and launch vehicles as intrinsic to the

proposed HLS scope, solution, and evaluation, Blue Origin would have proposed a simpler lander architecture optimized only for launch [REDACTED].

10. In essence, if the Flight Readiness Review requirement had been written in original Request For Proposal as it was finally interpreted only for SpaceX, it would instead have been written as follows:

“[a]n FRR is required prior to each launch of an HLS element, except an unlimited number of launches is allowed under only one FRR if those launches are for refueling in Low Earth Orbit without regard to whether those launches utilize an established launch vehicle or a new vehicle still in its design phase.”

11. If such language had been included in the Request for Proposal, Blue Origin’s leadership would have directed the proposed solution to maximize opportunities for refueling in Low Earth Orbit and the team would have engineered and proposed an entirely different architecture with corresponding differences in technical management and price scores. Rather than designing to an industry standard five-meter fairing to assure launch vehicle certification and availability, Blue Origin would have designed its architecture [REDACTED]

[REDACTED] Further, Blue Origin would have proposed a large number of launches and Low Earth Orbit rendezvous events, allowing the incorporation of elements such as a propellant depot in Low Earth Orbit to be refueled by multiple launches.

12. Further, with a simpler lander design and [REDACTED] launches, had Blue Origin known that NASA would waive fundamental safety and mission assurance requirements, including the FRR, Blue Origin would have proposed a lower price [REDACTED]

[REDACTED]. Blue Origin had the capability and financial

support from its owner to propose [REDACTED] launch services as a corporate contribution, significantly lowering cost to NASA. Blue Origin also had the capability and financial support from its owner to propose and implement a single-element lander solution for HLS Option A that would have lowered cost to NASA [REDACTED] [REDACTED].

13. Alternatively, had NASA conducted discussions with Blue Origin, Blue Origin would have addressed any budget concerns or impacts that NASA had, due to perceived Fiscal Year (FY) 2021 budget shortfalls or other budget challenges. Indeed, Blue Origin's owner is - and was - willing to commit billions of dollars in corporate contribution to cover NASA funding shortfalls and delays, had NASA made its budgetary constraints known to Blue Origin as it did to only SpaceX. NASA's decision to not engage in discussions with Blue Origin prevented Blue Origin from making such an offer during the interval in which NASA negotiated only with SpaceX.

14. Had the Agency engaged in negotiations with Blue Origin, as it engaged with negotiations with SpaceX, Blue Origin would have justified, enhanced, or even revised those aspects of its technical and management proposal rated as having a weakness or significant weakness. For example, for Blue Origin's Technical proposal, Blue Origin would have: proved its radio frequency communication system design compared to NASA's analysis of multipath interference and lunar thermal noise, with [REDACTED]

[REDACTED]; [REDACTED]

[REDACTED]; [REDACTED].

[REDACTED]

[REDACTED]

[REDACTED]. For its Management proposal, Blue Origin would have: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]. Also, it would have made clear in its proposal that the purported advance payment issue discussed in Blue Origin's SEP report were not advance payments but rather were long-lead item procurement payments. Every one of these items, in any case, would have been easily reconciled if NASA had negotiated with Blue Origin as it did with SpaceX.

15. If NASA moves forward with performance of Appendix H by just SpaceX, Blue Origin will suffer immediate harm. First, Blue Origin will have lost the opportunity to work with NASA, gaining valuable insights that cannot be remedied by other work for NASA that is not the full design, development, test, and evaluation of a lunar lander. Second Blue Origin will continue losing additional key employees, who were hired for its HLS program, to competitors including SpaceX. For example, [REDACTED], Blue Origin's former HLS program mission design lead, left Blue Origin to join SpaceX in August 2021; and [REDACTED], Blue Origin's former lunar architecture system sizing lead, left Blue Origin to join SpaceX in September 2021. The employees departing Blue Origin are highly qualified engineers and scientists that are critical assets with specialized knowledge of Blue Origin's HLS proposal and architectural design, and are important for Blue Origin to compete in future HLS lander solicitations. Third, Blue Origin's

National Team partners will move on to new opportunities, foreclosing the benefit to Blue Origin and themselves of competing together in this area as a uniquely qualified, experienced, and knowledgeable team. Fourth, as a result of not being able to perform the contract, Blue Origin will also be deprived of the lost revenues it would have accrued.

16. If NASA moves forward with performance of Appendix H by just SpaceX, Blue Origin will also suffer unusual harm unique to the lunar transportation business: (1) NASA's investment of \$3B in one provider will yield an unlevel competitive field at best and a launch system monopoly at worst, with only one government-endorsed, government-funded system able to be proposed for any future lunar mission services competition, irreparably harming Blue Origin's civil, national security, and commercial business. NASA has yet to provide a plan that could possibly balance future competition by actually developing any competitors to SpaceX; (2) NASA will build its entire lunar architecture around Starship, a launch system which is not compatible with any other providers' systems. The Starship closed architecture will block other providers for many years, indefinitely locking NASA into SpaceX sales every time it plans a lunar mission and ultimately obviating even NASA's own exploration vehicles (the Space Launch System and Orion deep-space capsule), which are redundant to the closed Starship architecture. This monopolistic hold on the Moon by one provider unfairly disadvantages Blue Origin for both launch system and in-space systems.

I declare under penalty of perjury pursuant to 28 U.S.C. § 1746 that the foregoing is true and correct to the best of my knowledge and belief.

Executed on September 29, 2021 in Kent, Washington.

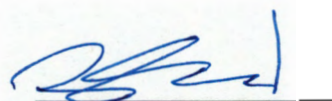

Brent Sherwood

EXHIBIT 3

**IN THE UNITED STATES COURT OF FEDERAL CLAIMS
BID PROTEST**

BLUE ORIGIN FEDERATION, LLC,)	
)	
Plaintiff,)	
v.)	
)	
THE UNITED STATES,)	No. 21-1695C
)	Judge Richard A. Hertling
Defendant,)	
and)	
)	
SPACE EXPLORATION TECHNOLOGIES, CORP.,)	
)	
Defendant-Intervenor.)	

DECLARATION OF DR. ALAN W. WILHITE PURSUANT TO 28 U.S.C. § 1746

I, Alan W. Wilhite, am over 18 years old, and do hereby declare and state as follows:

1. I am a retired aerospace engineer. I have been retained by Barnes & Thornburg LLP for Blue Origin Federation, LLC (“Blue Origin”) to render professional analysis in connection with the above-referenced matter. In conducting my analysis, I relied upon the documents contained in the Administrative Record (“AR”) and publicly available information.
2. I have 47 years of experience in aerospace systems engineering, all of which I have spent either working as an employee of or supporting the National Aeronautics and Space Administration (“NASA”).
3. I was the NASA-funded Langley Distinguished Professor of Advanced Aerospace Systems Architecture in the School of Aerospace Engineering at Georgia Institute of Technology (2004-2015). I served as the co-Director of the Georgia Tech Center for Aerospace Systems Engineering (“CASE”) and was the co-director of the Space Systems Design Laboratory. At Georgia Tech, I taught graduate classes including Aerospace Systems Engineering, Spacecraft and Launch Vehicle Design, and Advanced Rocket and Electric Propulsion. As a NASA Langley Professor, I conducted research in systems engineering, space exploration systems, propulsion, robust design, aerodynamics, multidisciplinary optimization, operations, cost, and risk. My students and I were embedded with NASA Langley’s Space Mission Analysis Branch conducting research on a broad range of topics, including future Lunar and Mars vehicles, systems, and complete integrated space system architectures with optimization. My former students have taken leadership roles at various institutions in the space industry, including NASA, Space Exploration Technologies Corporation (“SpaceX”) and Blue Origin; several of my students work in NASA’s Space Mission Analysis Branch supporting the

Artemis Program, and three members of the HLS Option A Source Evaluation Panel (“SEP”) are former students.

4. I was the Eminent Scholar in Systems Engineering and Simulation at the University of Alabama Huntsville (2001-2004) supporting NASA Marshall and other NASA centers. I supported the development of systems engineering plans and technology risk assessment for NASA’s Next Generation Launch Technology (“NGLT”) Program developing system simulations to determine the impact of technologies on launch vehicle and space transfer vehicle performance. During this time, I was awarded the NASA Turning Goals Into Reality (“TGIR”) award for systems analysis for developing the Probabilistic Operations Event Modeler (“POEM”) for launch operations assessment and launch vehicle fleet sizing for NGLT.
5. From 2002-2004, I served as NASA’s external chair for systems engineering strategic planning and supported NASA’s Vision for Space Exploration as a team leader in the design, analysis, and optimization of complete space system architectures including reusable and expendable launch vehicles, lunar and Mars transfer vehicles using chemical and electric propulsion, lunar and Mars descent/landing systems, and Earth return vehicles.
6. I was the director of the congressionally mandated NASA Independent Program Assessment Office (“IPAO”) to review the major programs/projects for the NASA headquarters senior Program Management Council comprised of the NASA Deputy Administrator and the program associate administrators at NASA Headquarters. The IPAO oversight was for program and project planning, execution, leadership, and health/risk of their technical, schedule, and cost performance. Previously, I was director of the System Management Office conducting similar studies/reviews as IPAO for the NASA Langley Center Director and senior staff.
7. I managed the \$756M High Speed Research Program for NASA as the Director, Deputy Director, and Airframe Project Manager during the program (1993-1999). The technology development of the High-Speed Civil Transport included Flight Deck, Airframe Structures and Materials, Aerodynamic Performance, Propulsion and High Temperature Materials, and Systems Integration, Environmental Impact, Atmospheric Effects of Stratospheric Aircraft, and the Tu-144 Flight Tests. I set the objectives, identified/defined tasks, integrated technical elements, and managed technical accomplishments, schedules, and resources versus plan. To accomplish the program, the entire workforce of over 2000 engineers, scientists, and administrative support were trained in quality management that was applied to technical integration as well as project management, reporting, and meetings.
8. I was the Deputy Director of the Advanced Vehicle Division at NASA Langley (1992-93) that conducted aeronautical systems studies to support the Office of Aeronautics and its technology programs in the areas of subsonic aircraft, High-Speed Civil Transport, Advanced Aircraft, and multidisciplinary research. As deputy, I assisted in the management of four branches comprised of 105 scientists, engineers, and administrative staff. I was also the Phase I High Speed Research Airframe Project Manager and the Langley focal point for planning,

advocating, and coordinating aerodynamics, flight systems, materials and structures for Phase II.

9. I was the Head, Deputy Head, and researcher in the NASA-Langley Vehicle Analysis Branch (“VAB”) (1969-1988) leading the advanced space transportation program supporting the Office of Space Flight and Office of Aeronautics and Exploration Technology. The VAB had the Agency lead roles for Advanced Manned Launch Systems and supporting roles for Space Exploratory Initiative Mars Mission, aerobrake technology, and radiation shielding. I led the development of advanced computer-aided tools for the analysis and design of advanced aerospace vehicles. I also chaired the Code Q sponsored Reentry Subpanel for the Nuclear Safety Review Panel for Mission Safety Evaluation of Galileo spacecraft.
10. In 1984, I was Director of Technology Maturation for the National Aero-Space Plane (“NASP”) Program that encompassed the disciplines of aerodynamics, computational fluids, propulsion, materials, structures, and flight systems and was conducted by NASA, Air Force, national laboratories, industry, and universities. I established the prime NASP contractor reviews of the Technology Maturation Program for prioritizing, advocating, and developing new tasks. I initiated and established the NASP Materials Consortium, and the Slush Hydrogen Program.
11. I was a member of the International Astronautical Federation, International Council for Systems Engineering, and an AIAA Associate Fellow who served on the AIAA Technical Committees - Space Transportation, Liquid Rocket Propulsion, and Computer Aided Design.
12. Prior to Blue Origin’s GAO protest (B-419783.1 and .3), I had never previously provided expert consulting services in a litigation matter.
13. I have been a member of 3 Source Evaluation Panels as a technical advisor.
14. My opinions relating to the National Aeronautics and Space Administration (“NASA”) Broad Agency Announcement NNH19ZCQ001K_APPENDIX-H-HLS Option A (“Solicitation”), as described in more detail below, are:
 - a. SpaceX’s management approach, technical approach, and concept of operations is overly risky, contains an unrealistic schedule, and is a poor fit for the HLS Option A mission.
 - b. NASA’s assignment of an “Outstanding” Management proposal rating does not comport with how I understand NASA’s practice operates in evaluating proposals in light of the Solicitation’s requirements and failed to take into consideration SpaceX’s unrealistic and risky schedule, which failed to include dozens of critical milestone and critical reviews.
 - c. It is my opinion that SpaceX’s proposal should have been evaluated as having failed to meet over 20 Solicitation scheduling requirements and was suspect in the development timing between major milestones. This means that SpaceX’s

proposed technical and management approaches included performing several launches without the benefit of critical technical and safety information.

- d. Given the significance of the Flight Readiness Reviews (“FRRs”) and SpaceX’s failure to include 15 FRRs, NASA assignment of only a “weakness” for failing to include the FRRs should have been viewed as inadequate, based on my experience with NASA’s method of evaluating proposals.
- e. NASA failed to consider or assign any weakness or deficiency for SpaceX’s proposal errors in relation to dozens of other critical reviews as the Solicitation required, including the important DCR.
- f. Had SpaceX included what has been stated to be the complete set of FRR and other critical reviews for SpaceX’s supporting spacecraft launches, its proposed pricing would have been significantly impacted due to the high cost of these reviews and associated scheduling adjustments. NASA failed to acknowledge this fact and effectively allowed SpaceX to respond to a different solicitation with different requirements from the HLS Option A Solicitation.

A. The SSA Erroneously Determined That The Exceptional Complexity and High Risk Nature of SpaceX's Proposal Was Mitigated By Launch Schedule Flexibility.

15. I agree with NASA's Chief Engineer, Ralph Roe, that SpaceX's technical approach, and concept of operations is overly risky, contains an unrealistic schedule, and is a poor fit for the HLS Option A mission. In an email to the SSA, Kathy Leuders, on April 6, 2021, shortly after the SSA made an initial conditional selection of SpaceX's proposal, Mr. Roe provided the following assessment expressing his concerns about the selection of SpaceX, which included a non-exhaustive list of technical issues that significantly increase NASA's risk and his doubt that SpaceX's could meet its proposed schedule:

I believe the fact that SpaceX is building a spacecraft and rocket for a very different mission (4 crew to Mars) than our missions to the moon (4 crew to the moon) increases our risk significantly.

Given SpaceX's performance the last two years I believe they will overcome these technical challenges but not on the schedule they suggest and not without us accepting significantly more risk than we would for a vehicle sized closer to what our mission really requires.

AR Tab 67 at 62900.

16. My review of the Administrative Record confirms Mr. Roe's highlighted concerns that SpaceX's oversized single stage HLS Lander would create significant risk and would not meet its proposed schedule. For example, based upon my review of the details behind SpaceX's system and assumptions [REDACTED], SpaceX only addressed [REDACTED] in the Certification Baseline Review milestone acceptance criteria. The other [REDACTED]. For the [REDACTED] of the HLS lander is [REDACTED] as stated in the SEP. Simply put, [REDACTED]. To put the significance of this risk in context, if Apollo [REDACTED], Neil Armstrong would have run out of propellant and crashed on the lunar surface. However, instead of assigning a weakness, or more appropriately a significant weakness, NASA assigned SpaceX a Significant Strength and two Strengths for its [REDACTED] and flexibility of [REDACTED]. See AR Tab 59c at 62779-82. As [REDACTED] my review confirms, [REDACTED] and generous flexibility relied upon to support those ratings are not in play.

17. In the Source Selection Statement, the SSA also acknowledged "the immense complexity and heightened risk" associated with the "very high" number of launches needed to execute SpaceX's approach, and noted that "this complexity largely translates into increased risk of operational schedule delays." AR Tab 77 at 63047. However, the SSA erroneously concluded these risks were mitigated by the schedule for launches of supporting spacecraft (depot and tanker) launches, which are supposed to occur a few months before the launch of SpaceX's HLS Starship:

Indeed, despite SpaceX's concept of operations relying on a high number of launches, there is some flexibility in the timing of its required propellant tanker launches prior to the time-critical HLS Starship. This flexibility will allow NASA to time its crewed mission only after SpaceX has successfully achieved its complex propellant transfer activities and is ready to commence launch of its lunar lander. It is this flexibility that allays my concerns with regard to the admittedly riskier aspects of the first phase of SpaceX's concept of operations.

AR Tab 77 at 63047.

18. Rather than mitigating the SSA's concerns, an evaluation of the "flexibility" in SpaceX's schedule should have raised even more alarms, as it shows that SpaceX failed to conduct dozens of safety and launch reviews, conducted other reviews several months too late, and proposed to [REDACTED]. The Administrative Record shows that SpaceX failed to meet clear Solicitation requirements and NASA overlooked these numerous errors.

B. SpaceX Failed To Propose To Conduct Dozens Of Flight Reviews, and Also Proposed To Conduct Numerous Other Design, Certification, and Launch Reviews Several Months After They Were Required To Be Conducted.

19. Scheduling is crucial to the success of the HLS Lander mission. In order to adhere to the Solicitation's schedule of a 2024 launch, SpaceX cut corners with several critical milestone reviews, including the Flight Readiness Review ("FRR"), Design Certification Review ("DCR"), Mission Specific Preliminary Design Review ("MSPDR"), Mission Specific Critical Design Review ("MSCDR"), Mission Specific System Acceptance Review ("SAR"), Launch Vehicle Systems Readiness Review ("LV-SRR"), and Launch Readiness Review ("LRR"). SpaceX either failed to propose certain reviews for all HLS elements or proposed to conduct the reviews several months too late to have any benefits for HLS elements like the supporting spacecraft and launch vehicles. See Attachment A, Summary of SpaceX's IMS Milestone Requirements and Reviews. As explained below, each of these reviews is of significant importance because they provide critical information regarding the safety and successful performance of the spacecraft launches. For this reason, if evaluating a proposal with similar issues as SpaceX's while at NASA, I would not have recommended award, and am surprised that NASA agreed to make an award to SpaceX's proposal, because NASA did not award contracts that NASA stated were not consistent with crucial safety requirements in the Solicitation.
20. SpaceX's Integrated Management Schedule shows that it failed to schedule both critical milestone reviews and mission specific launch vehicle reviews. In my experience, NASA would treat a milestone review as a review of each HLS element, while a mission specific review is a review of the commercial launch vehicle as modified for the HLS mission. The following is a summary of the milestone and launch vehicle reviews that SpaceX failed to schedule:

Specific Review	Solicitation Provision	Did SpaceX Proposal Align With Provision?
Flight Readiness Reviews ("FRRs")	<p>"The FRR should be completed by two (2) weeks before launch of each HLS element." (AR Tab 27e at 32972).</p> <p>"An FRR is required prior to each launch of an HLS element. Propose multiple FRRs as required." (AR Tab 27k at 33187).</p> <p>Completion Due Date - Relative: "2 weeks before first launch of an HLS element (L-2 weeks)." (AR Tab 27k at 33187).</p>	<p>No. SpaceX only proposed one FRR for its HLS Starship on [REDACTED]. It did not propose any FRRs for its fifteen (15) supporting spacecraft launches (which require launch vehicles for each launch).¹</p>

¹ AR Tab 27e at 32972; AR Tab 27k at 33187; AR Tab 34d.46 at 55969, row 1943.

Design Certification Review (“DCR”)	Completion Due Date - Relative: “9 months before first HLS element launch (L-9 months)” (AR Tab 27k at 33187). “Objective: The DCR ensures that the qualification and verifications demonstrate design compliance with the functional and performance requirements and human spaceflight certification. This milestone should be completed at first HLS launch – 9 Months (L9).” (AR Tab 27e at 32696).	No. SpaceX proposed to complete its DCR [REDACTED], rather than nine (9) months before. ²
Mission Specific Preliminary Design Review (“MSPDR”)	“At not later than L-18 months, the contractor shall conduct a preliminary detailed design review prior to major commitment to drawings and design. Mission specific trade studies shall be completed prior to the MSPDR” (AR Tab 27e at 33009).	No. SpaceX proposed to conduct its MSPDR [REDACTED] later than was required. ³
Mission Specific Critical Design Review (“MSCDR”)	“At not later than L-12 months, the contractor shall conduct an MSCDR prior to design freeze and before significant fabrication activity begins.” (AR 27e at 33010).	No. SpaceX proposed to conduct its MSCDR [REDACTED] later than was required, and [REDACTED] ⁴
System Acceptance Review (“SAR”)	“At not later than L-4 months, the contractor shall conduct a mission specific SAR after all items are complete to review the design, fabrication, qualification testing and analysis results of the mission specific items, such as special adapters, low-shock separation systems, unique payload fairing access doors to perform final cover removal or batter plug installation, special purge locations or gasses, fuel fill or vent capabilities, cryogenic management vent lines, etc.” (AR Tab 33010).	No. SpaceX proposed to conduct its SAR on [REDACTED], when supporting spacecraft launches occur from [REDACTED] to [REDACTED]. ⁵
Launch Vehicle Systems Readiness Review (“LV SRR”)	“The contractor shall conduct a Launch Vehicle systems Readiness Review to demonstrate that the launch site and launch vehicle are ready to proceed with launch vehicle processing activities at the launch site.” (AR Tab 27e at 33011).	No. SpaceX’s proposal provides for one LV-SRR, and is therefore missing 15 LV-SRRs for

² AR Tab 27k at 33187; AR Tab 27e at 32696; AR Tab 34d.46 at 55932 row 130.

³ AR Tab 27e at 33099; AR Tab 34d.46 at 55969, row 1936.

⁴ AR Tab 27e at 33010; AR Tab 34d.46 at 55969, row 1937.

⁵ AR Tab 27e at 33010; AR Tab 34d.46 at 55969, row 1938.

		supporting spacecraft launches. ⁶
Pre-Mate Readiness Review (“PMRR”)	“At not later than spacecraft to L minus 1 week, the contractor shall conduct a Pre-Mate Readiness Review to demonstrate the launch site and launch vehicle are ready for spacecraft mechanical and electrical integration. The contractor shall conduct a launch vehicle/site walkdown with NASA participation prior to or in conjunction with the Pre-Mate Readiness Review.” (AR Tab 27e at 33011).	No. SpaceX’s proposal only includes one PMRR, and is therefore missing 15 PMRRs for supporting spacecraft launches. ⁷
Launch Readiness Review (“LRR”)	“LVC will conduct/chair, and NASA LSP shall participate in an LRR one day prior to launch to verify all actions from the FRR are complete and final processing has been successfully completed. At the conclusion of this review, NASA will provide an “approval to proceed with launch countdown.” (AR Tab 27e at 33011).	No. SpaceX’s proposal only includes one LRR and is therefore missing 15 LRRs for supporting spacecraft. ⁸

21. **Flight Readiness Review (FRR)** – SpaceX failed to propose 15 Flight Readiness Reviews. See AR Tab 108a 217 (Declaration of Dr. Alan W. Wilhite) at 101201-101208. SpaceX proposed only one FRR for its final HLS Integrated Lander launch. The Solicitation states that “[a]n FRR is required prior to each launch of an HLS element. Propose multiple FRRs as required.” AR Tab 27k (Solicitation Attachment O) at 33187. The FRR is a critical milestone review that “examines tests, demonstrations, analyses, and audits that determine the system’s readiness for a safe and successful flight or launch and for subsequent flight operations. The FRR also ensures that all flight and ground hardware, software, personnel, and procedures are operationally ready.” AR Tab 27e at 32972. SpaceX did not propose any FRRs for supporting spacecraft or launch vehicles. This error was overlooked and minimized by NASA. NASA assigned a mere weakness and only required SpaceX to include two additional FRRs in its proposal.

22. NASA’s Expanded Guidance on Systems Engineering, which is part of the Agency’s procedural requirements for which compliance is mandatory⁹, provides further insight into the

⁶ AR Tab 27e at 33011; AR Tab 34d.46 at 55969, row 1939.

⁷ AR Tab 27e at 33011; AR Tab 34d.46 at 55969, row 1940.

⁸ AR Tab 27e at 33011; AR Tab 34d.46 at 55969, row 1941.

⁹ NASA’s publicly available procedural requirements, including Expanded Guidance on Systems Engineering, can be found at

<https://nodis3.gsfc.nasa.gov/displayDir.cfm?t=NPR&c=7123&s=1C> (last visited Sept. 26, 2021).

The Expanded Guidance for NASA Systems Engineering Volume 1: Systems Engineering Practices, NASA/SP-2016-6105-SUPPL, is a document providing expanded guidance for NASA Systems Engineering including best practices, “a top-level implementation approach on the practice of systems engineering unique to NASA. Material used for updating this handbook has been drawn from many sources, including NPRs, Center systems engineering handbooks and

critical importance of FRRs as a best practice. It notes that, in addition to other technical reviews, “[i]f a project or activity produces systems for space flight, than [an FRR] would also be necessary.” Expanded Guidance for NASA Systems Engineering, pages 296-97.

23. Because SpaceX’s initial proposal failed to include *any* FRRs for its 15 supporting spacecraft launches, SpaceX would have conducted all of its supporting spacecraft launches without critical information from the FRR, including the following:
 - a) **Orbital Debris Assessment Reports (“ODARs”) and End of Mission Plan (“EOMP”):** The ODAR documents how the HLS addresses the potential for generating debris during its operations, or from a collision with debris or orbiting space systems. The EOMP is the plan accompanying the ODAR during later mission development to ensure that the HLS’s design and operational use do not prevent a safe decommissioning and disposal. AR Tab 27f at 33101.
 - b) **System Safety Assessment Report (“SSAR”):** The SSAR is used to document the identifying, controlling, and verification activities associated with potential safety hazards and supports the risk management process by eliminating identified risks or reducing them to an acceptable level. AR Tab 27f at 33111.
 - c) **Mishap Preparedness and Contingency Plan (“MPCP”):** The MPCP helps the HLS Interim Response Team to understand a project’s hazards and give them information about necessary precautions to ensure safety of personnel and assets. AR Tab 27f at 33120.
 - d) **Planetary Protection Data:** This data documents the planetary protection compliance for HLS Program Lunar missions. AR Tab 27f at 33124.
24. The information provided by these reports is important to the success and safety of the HLS mission, and launching spacecraft without it significantly increases risk.
25. The Solicitation contemplated NASA having ultimate responsibility for certifying flight readiness for all launches. See AR Tab 27e at 32949. SpaceX did not propose any “SpaceX FRRs”, but even if it did, in my experience, a corporate-driven FRR would not have the same level of risk mitigation as FRR led and approved by NASA.
26. **Design Certification Review (DCR)** – SpaceX proposed to complete its DCR [REDACTED], rather than nine months before, as detailed in the Solicitation, rendering the DCR ineffectual for all supporting spacecraft launches, including the first two launch vehicles. See AR Tab 27e at 32969 (“This [DCR] milestone should be completed at first HLS launch – 9 Months (L-9 months)”); see also AR Tab 27k (Solicitation Attachment O) at 33187 (DCR must be completed “9 months before first HLS element launch (L-9 months).”). SpaceX proposed to complete its DCR on [REDACTED]. AR Tab 34d.46 at 55932, row

processes, other Agency best practices, and external systems engineering textbooks and guides.”
Page xii.

130. SpaceX's first HLS launch is scheduled for [REDACTED]. *Id.* at 55969, row 1966. The DCR is a critical milestone review, and yet NASA did not assign SpaceX any weakness or significant weakness for completely failing to meet this requirement.
27. Based on my experience at NASA and space flights, as well as my review of NASA documentation, the DCR is arguably one of, if not the, most important critical milestone safety review as it is the verifies the compliance and safety of the entire design.
28. According to NASA's systems engineering guidance, "[t]he Design Certification Review ('DCR') ensures that the qualification verifications demonstrate design compliance with functional and performance requirements. A DCR is a form of Safety and Mission Success Review (SMSR) . . . and may be required before critical flight activities . . . The need for these reviews should be documented in the program or project plan." Expanded Guidance for NASA Systems Engineering, page 308. The DCR is a critical milestone review, as noted in the Solicitation, and yet NASA did not assign SpaceX any Weakness or Significant Weakness for completely failing to meet this requirement.
29. NASA's systems engineering guidance provides additional insight into the purpose of the DCR, listing the following as objectives for such reviews:
- a) "Confirm that the verification results met functional and performance requirements, and that test plans and procedures were executed correctly in the specified environments."
 - b) "Certify that traceability between test article and production article is correct, including name, identification number, and current listing of all waivers."
 - c) "Identify any incremental tests required or conducted due to design or requirements changes made since test initiation, and resolve issues regarding their results."

Expanded Guidance for NASA Systems Engineering, page 308. It also lists various criteria for "determining the readiness of DCR product preparation," including but not limited to the following:

- a) "Do the test procedures and environments used comply with those specified in the plan?"
- b) "Are there any changes in the test article configuration or design resulting from the as-run tests? Do they require design or specification changes and/or retests?"
- c) "Have design and specification documents been audited?"
- d) "Do the verification results satisfy functional and performance requirements?"
- e) "Is the human element adequately integrated, evaluated, and documented[]?"

Expanded Guidance for NASA Systems Engineering, page 308.

30. The DCR includes reports, analyses, and data packages, including the following documents:
- a. **Avionics Emulator and Acceptance Data Package:** This package provides a functional model to execute the HLS flight software, and support tools to emulate

flight simulations to the software system to use for test, operations, preparation, and other tasks. AR Tab 27f at 33142.

- b. **Micrometeoroid Debris (“MMOD”)**: The MMOD analysis assesses risk to the HLS spacecraft and crew from critical damage to, or penetration of, HLS components from micrometeoroid and orbital debris impacts during various mission stages. AR Tab 27f at 33122.
 - c. **System Safety Assessment Report (“SSAR”)**: The SSAR is used to document the identifying, controlling, and verification activities associated with potential safety hazards and supports the risk management process by eliminating identified risks or reducing them to an acceptable level. AR Tab 27f at 33111.
 - d. **Flight Software Simulator**: The flight software simulator provides a functional model to execute the HLS flight software and emulate flight simulations in the software system. AR Tab 27f at 33103.
 - e. **Risk Reports - Initial Demo**: The Risk Reports provide information for planning, management, control, and implementation of the contractor’s risk management program in compliance with NASA regulations. AR Tab 27f at 33086.
31. **Mission Specific Preliminary Design Review (MSPDR)** – SpaceX proposed to conduct its MSPDR [REDACTED] later than was required. The Solicitation states “At not later than L-18 months, the contractor shall conduct a preliminary detailed design review prior to major commitment to drawings and design.” AR Tab 27e at 33009. Because its first HLS launch is on [REDACTED], a NASA evaluator would have expected SpaceX to have scheduled its MSPDR for [REDACTED] (L-18). Instead, SpaceX scheduled its MSPDR for [REDACTED], [REDACTED] later.
 32. **Mission Specific Critical Design Review (MSCDR)** – SpaceX proposed to conduct its MSCDR [REDACTED] later than was required, and it proposed to conduct the MSCDR [REDACTED] in violation of the Solicitation requirements. The Solicitation states that “[a]t not later than L-12 months, the contractor shall conduct an MSCDR prior to design freeze and before significant fabrication activity begins.” AR Tab 27e at 33010.
 33. SpaceX proposed to conduct the MSCDR on [REDACTED]. SpaceX proposed [REDACTED] rather than [REDACTED] the MSCDR as the Solicitation states.

Date	Event from SpaceX IMS	MSCDR Conducted	AR Source AR Tab 34d.46
[REDACTED]	[REDACTED]	No	55969 (row 1961)
		No	55969 (row 1954)
		No	55969 (row 1960)
		No	55969 (row 1962)
		No	55969 (row 1955)

	No	55969 (row 1963)
	No	55969 (row 1964)
SpaceX's MSCDR is scheduled	Yes	55969 (row 1937)

SpaceX completely negates any benefit of the MSCDR [REDACTED]
[REDACTED] NASA overlooked this critical error.

34. **Mission Specific System Acceptance Review (SAR)** – SpaceX proposed to conduct the SAR [REDACTED], rendering this review useless for the vast majority of SpaceX's HLS mission launches. The Solicitation states: “[a]t not later than L-4 months, the contractor shall conduct a mission specific SAR after all items are complete to review the design, fabrication, qualification testing and analysis results of the mission specific items.” AR Tab 27e at 33010. SpaceX's 15 supporting spacecraft launches occur from [REDACTED] to [REDACTED]. AR Tab 34d.46 at 55969-70, rows 1966-2010. SpaceX proposed to conduct its SAR on [REDACTED]. AR Tab 34d.46 at 55969, row 1938. NASA overlooked SpaceX's failure to conduct the SAR prior to the vast majority of SpaceX's HLS launches.
35. **Launch Vehicle System Readiness Review (LV-SRR)** –The Solicitation states that contractors are to “conduct a Launch Vehicle Systems Readiness Review to demonstrate that the launch site and launch vehicle are ready to proceed with launch vehicle processing activities at the launch site.” AR Tab 27e at 33011. One Launch Vehicle System Readiness Review was required before each launch. SpaceX proposed 16 launches, but only one Launch Vehicle System Readiness Review on [REDACTED]. SpaceX proposal fails to include a Launch Vehicle System Readiness Review for the 15 launches occurring between [REDACTED] and [REDACTED]. AR Tab 34d.46 at 55969-70, rows 1966-2010. NASA overlooked SpaceX's failure to conduct the Launch Vehicle System Readiness Reviews as stated in the Solicitation.
36. **Pre-Mate Readiness Review (PMRR)** – SpaceX's proposal fails to provide 15 PMRRs. The Solicitation stated that, “[a]t no later than spacecraft to LV mate minus 1 week, the contractor shall conduct a Pre-Mate Readiness Review[.]” AR Tab 27e at 33011. The PMRR was required “to demonstrate the launch site and launch vehicle are ready for spacecraft mechanical and electrical integration. Id. At “minimum,” the PMRR includes presenting the following items to NASA:
- a) “Action item status, safety status, spacecraft mating plan, closure plan, spacecraft integration/launch site documentation, interface verifications, checkout and software status, nonconformance reports, launch site status, spacecraft readiness, and review of flight profile” and
 - b) “A detailed schedule showing all activities remaining to achieve an on-time launch.”
- Id. SpaceX's proposal only includes one PMRR on [REDACTED]. AR Tab 34d.46 at 55969. As a result, SpaceX's proposal fails to include a PMRR for 15 of its proposed launches occurring between [REDACTED] and [REDACTED]. Id. at 55969-70, rows 1966-2010.

37. **Launch Readiness Review (LRR)** – The Solicitation states that a Launch Readiness Review must occur “one day prior to launch to verify all actions from the FRR are complete and final processing has been successfully completed.” AR Tab 27e at 33011. SpaceX’s proposal fails to include 15 LRRs. SpaceX’s proposal only schedules one LRR on [REDACTED]. AR Tab 34d.46 at 55969. Therefore, similar to the FRRs, SpaceX failed to include any LRRs for supporting spacecraft or launch vehicles. NASA overlooked this omission.
38. Furthermore, as mentioned above, SpaceX failed to propose 15 FRRs that it should have proposed for its supporting spacecraft or launch vehicles. See, *supra*, ¶¶ 20-21. As a result, even if SpaceX had proposed the 15 LRRs, the review would be unable to “verify all actions from the FRR are complete[.]”
39. If SpaceX were required to meet these schedule requirements, as the record shows that all other offerors were, it would have, at minimum, erased any flexibility in SpaceX’s schedule, and more likely would have pushed its HLS Starship launch date into 2025 or later. By not evaluating these errors in SpaceX’s proposal, NASA unwittingly assumed a tremendous amount of risk and negatively impacted Blue Origin.

C. NASA Failed to Consider the Impact Waiving Required Milestones and Other Critical Reviews For Only SpaceX Would Have On Cost.

40. NASA also failed to evaluate how SpaceX’s failure to schedule critical milestones on other reviews impacted SpaceX’s cost. NASA also failed to consider the significant impact such review would have on the cost, scheduling, and ultimate technical design offeror’s would include in the bid.
41. Further, by not requiring SpaceX to propose per launch FRRs, DCR, and at least six other critical reviews of such significant importance, NASA effectively allowed SpaceX to respond to an entirely new solicitation with materially different requirements from the HLS Option A Solicitation. An offeror, such as Blue Origin, that was required to include the FRRs and other critical reviews would not be on equal footing and, in my opinion, would be significantly impacted and restricted in its technical proposal, hamstrung by strict schedule management deadlines, and be subject to increased costs. Absent these reviews, which would be a significant deviation from NASA historic standards, it is not unrealistic that Blue Origin’s proposal would likely be substantially different than the one originally submitted.

D. NASA’s Assignment of Management and Technical Ratings Do Not Adequately Consider SpaceX’s Unrealistic and Risky Schedule.

42. **Unrealistic Production Schedule:** In addition to the above examples, SpaceX’s build schedule for its supporting spacecraft and launch vehicles is unrealistic.
 - a) SpaceX proposes to complete build of its Depot Starship on [REDACTED] (AR Tab 34d.46 at 55969, row 1960) [REDACTED] (AR Tab 34d.46, row 1966). A [REDACTED] provides no flexibility for any delay in production (which often occurs),

nor does it provide any margin for delay between [REDACTED] and prepare both for launch. Delays due to bad weather or high winds are very common for launches. SpaceX's schedule provides no flexibility for any type of delay.

b) Similarly, SpaceX proposes [REDACTED]. See AR Tab 34d.46, rows 1955, 1970. For the reasons discussed above, this presents a high risk of delays in SpaceX's schedule.

c) Similarly, for the uncrewed flight test, SpaceX proposes [REDACTED] AR Tab 34d.46 at 55968, rows 1910, 1915.

43. NASA failed to evaluate this unrealistic build and launch schedule. Given that SpaceX required [REDACTED] Depot Starship (AR Tab 34d.46 at 55969, row 1960), Tanker Starship (AR Tab 34d.46, row 1961), and Superheavy Booster (AR Tab 34d.46, row 1955), [REDACTED] is unrealistic and extremely high risk. The Administrative Record does not have any records showing that the risk was evaluated by NASA. Quite the opposite. The SSA determined that SpaceX's complex and high risk concept of operations was mitigated by schedule flexibility. Upon examination of SpaceX's schedule, such a determination is baseless and indicates a serious mistake in NASA's assessment of the risk of SpaceX's proposal.

Based on the foregoing, it is my conclusion and opinion that's NASA's evaluation process was seriously flawed and based on numerous decisions that lack a factual or scientific foundation.

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I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief. I am aware of the penalties under Title 18, United States Code, Section 1001, for knowingly making false statements in these proceedings.

10/1/2021
Executed On

Alan W. Wilhite
Alan W. Wilhite

SUMMARY OF SPACEX'S MILESTONE REQUIREMENTS AND REVIEWS

#		Classification	Milestone Requirement or Review Alignment with Solicitation Provision	Source: AR Tab 34(d).46 SpaceX IMS (Page : Row)
1			Should Have Been: [REDACTED] At least [REDACTED] late	55969: Row 1936
2			(1) No MSCDR	55969: Row 1961
3			(1) No MSCDR	55969: Row 1954
4			(1) No MSCDR	55969: Row 1960
5			(1) No MSCDR	55969: Row 1962
6			(1) No MSCDR	55969: Row 1955
7			(1) No MSCDR	55969: Row 1963
8			(1) No MSCDR	55969: Row 1964
9			Should Have Been: [REDACTED] At least [REDACTED] late	55969: Row 1937
10			Should Have Been: [REDACTED] At least [REDACTED] late	55932: Row 130
11		Launch #1	(1) No FRR (2) No Timely DCR (3) No Timely MSPDR (4) No Timely MSCDR (5) No SAR (6) No LRR (7) No SRR (8) No PMRR	55969: Row 1968
12		Launch #2	(1) No FRR (2) No Timely DCR (3) No Timely MSPDR (4) No Timely MSCDR (5) No SAR (6) No LRR (7) No SRR (8) No PMRR	55969: Row 1971
13		Launch #3	(1) No FRR (2) No Timely DCR (3) No Timely MSPDR (4) No Timely MSCDR (5) No SAR (6) No LRR (7) No SRR (8) No PMRR	55969: Row 1974

SUMMARY OF SPACEX'S MILESTONE REQUIREMENTS AND REVIEWS

#		Classification	Milestone Requirement or Review Alignment with Solicitation Provision	Source: AR Tab 34(d).46 SpaceX IMS (Page : Row)
14		Launch #4	(1) No FRR (2) No Timely DCR (3) No Timely MSPDR (4) No Timely MSCDR (5) No SAR (6) No LRR (7) No SRR (8) No PMRR	55969: Row 1977
15		Launch #5	(1) No FRR (2) No Timely DCR (3) No Timely MSPDR (4) No Timely MSCDR (5) No SAR (6) No LRR (7) No SRR (8) No PMRR	55969: Row 1980
16		Launch #6	(1) No FRR (2) No Timely DCR (3) No Timely MSPDR (4) No Timely MSCDR (5) No SAR (6) No LRR (7) No SRR (8) No PMRR	55969: Row 1983
17		Launch #7	(1) No FRR (2) No Timely DCR (3) No Timely MSPDR (4) No Timely MSCDR (5) No SAR (6) No LRR (7) No SRR (8) No PMRR	55969: Row 1986
18		Launch #8	(1) No FRR (2) No Timely DCR (3) No Timely MSPDR (4) No Timely MSCDR (5) No SAR (6) No LRR (7) No SRR (8) No PMRR	55970: Row 1989

SUMMARY OF SPACEX'S MILESTONE REQUIREMENTS AND REVIEWS

#		Classification	Milestone Requirement or Review Alignment with Solicitation Provision	Source: AR Tab 34(d).46 SpaceX IMS (Page : Row)
19		Launch #9	(1) No FRR (2) No Timely DCR (3) No Timely MSPDR (4) No Timely MSCDR (5) No SAR (6) No LRR (7) No SRR (8) No PMRR	55970: Row 1992
20		Launch #10	(1) No FRR (2) No Timely DCR (3) No Timely MSPDR (4) No Timely MSCDR (5) No SAR (6) No LRR (7) No SRR (8) No PMRR	55970: Row 1995
21		Launch #11	(1) No FRR (2) No Timely DCR (3) No Timely MSPDR (4) No Timely MSCDR (5) No SAR (6) No LRR (7) No SRR (8) No PMRR	55970: Row 1998
22		Launch #12	(1) No FRR (2) No Timely DCR (3) No Timely MSPDR (4) No Timely MSCDR (5) No SAR (6) No LRR (7) No SRR (8) No PMRR	55970: Row 2001

SUMMARY OF SPACEX'S MILESTONE REQUIREMENTS AND REVIEWS

#		Classification	Milestone Requirement or Review Alignment with Solicitation Provision	Source: AR Tab 34(d).46 SpaceX IMS (Page : Row)
23		Launch #13	(1) No FRR (2) No Timely DCR (3) No Timely MSPDR (4) No Timely MSCDR (5) No SAR (6) No LRR (7) No SRR (8) No PMRR	55970: Row 2004
25		Launch #14	(1) No FRR (2) No Timely DCR (3) No Timely MSPDR (4) No Timely MSCDR (5) No SAR (6) No LRR (7) No SRR (8) No PMRR	55970: Row 2007
26		LV-SAR	Should Have Been: [REDACTED] late	55969: Row 1938
27		Launch #15	(1) No FRR (2) No Timely DCR (2) No Timely MSPDR (3) No Timely MSCDR (4) No Timely SAR (5) No LRR (6) No SRR (7) No PMRR	55970: Row 2010
28		SRR	Should Have Been For Each Launch Missing 15 SRRs	55969: Row 1939
29		FRR	Should Have Been For Each Launch Missing 15 FRRs	55969: Row 1943
30		PMRR	Should Have Been For Each Launch Missing 15 PMRRs	55969: Row 1940
31		LRR	Should Have Been For Each Launch Missing 15 LRRs	55969: Row 1941
32		Launch #16		55970: Row 2024

SUMMARY OF SPACEX'S MILESTONE REQUIREMENTS AND REVIEWS

#	SpaceX Proposed Date	Description of IMS Event	Classification	Milestone Requirement or Review Alignment with Solicitation Provision	Source: AR Tab 34(d).46 SpaceX IMS (Page : Row)
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1. Source: Human Landing System Appendix H Option A Solicitation (AR Tab 27); HLS Option A Solicitation Statement of Work (AR Tab 27e); Solicitation Attachment O Milestone Acceptance Criteria and Payment Schedule (AR Tab 27k).

2. SpaceX proposed [REDACTED] on its IMS. The above chart does not include these [REDACTED]. This is why the launch in row 32 states [REDACTED].